UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

MEMORANDUM

DATE: APR 7 2005

SUBJECT: Chino Airport Radium Dials Site
Document Emergency Removal Action at Building A-465 and
Request for Time Critical Removal Action at
Buildings A-465 and B-320, Hangar 12
Chino, San Bernardino County, California

FROM: Robert Wise, On-Scene Coordinator
Emergency Response Section (SFD-9-2)

TO: Daniel Meer, Chief
Response, Planning & Assessment Branch (SFD-9)

THROUGH: Peter Guria, Chief
Emergency Response Section (SFD-9-2)

I. PURPOSE

The purpose of this memorandum is obtain approval to spend up to $900,000 to mitigate threats to human health and the environment posed by the presence of aircraft equipment containing radioactive materials (radium-226, radon-222, bismuth 214, lead-210, and polonium-210) and other hazardous substances (mercury, methyl isobutyl ketone, 1,2 dichloroethane, 2-butanone, acetone, benzene, ethyl benzene, xylene, toluene, and trichloroethene) at the Chino Airport Radium Dials (CARD) Site located at 7000 Merrill Avenue, Chino, San Bernardino County, California, Buildings A-465 and B-320, Hangar 12 (See Figure 1: Site Location Map and Figure 2: Airport Diagram). This Action Memorandum also documents the United States Environmental Protection Agency's (EPA's) use of its emergency removal authority at Building A-465 to mitigate the uncontrolled generation of radon gas and migration of radioactive particulates. Un-managed radioactive materials at the CARD Site have resulted in an uncontrolled release of radium and radon into the environment. The proposed time-critical removal action is being taken pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9604(a)(1), as amended(CERCLA), to contain and remove radium containing and contaminated aircraft gauges, radon, and other hazardous substances present on-site.

On March 11, 2005, EPA initiated an emergency response action to mitigate the uncontrolled generation of radon gas and migration of radioactive particulates from the uncontrolled storage of radium containing aircraft instruments in and from Building A-465, Hangar 11. The release of radon and radioactive particulates may have impacted the entire building interior and these substances are also potentially being released from the building. EPA's On-Scene Coordinator (OSC), Robert Wise, utilized his delegated warrant authority, pursuant to Regional Order R9 1290.03A, to expend up to $200,000 to initiate site stabilization and security measures to mitigate the threats posed at the Site. A negative air machine was placed inside Building A-465, Hangar 11 to ventilate the structure, control radon levels, and reduce airborne radioactive particulates. This phase of the removal has been categorized as an emergency due to the presence of human carcinogens (radium-226, radon-222) that have been released in an uncontrolled manner inside Building A-465 and continue to pose a threat to human health and the environment. Due to lack of structural particulate or radon control measures and the unabated release of radon and radioactive particulates into the environment, a substantial threat of release of radioactive materials to the environment exists. Data indicates that conditions inside Building A-465 have resulted in exposure levels above those permitted for members of the general public as promulgated pursuant to Title 10 of the Code of Federal Regulations (CFR) at Section 20.1301(a)(1). The emergency removal action is being taken pursuant to Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1), to contain and remove radium containing and contaminated aircraft gauges, radon, and other hazardous substances present in Building A-465.

A time critical removal action will follow the emergency stabilization. Response actions will include removal of the source materials in both Building A-465 and Building B-320, Hangar 12 and assessment of residual radioactive contamination and structural decontamination as necessary. It is estimated that removal activities will require an additional 15 on-site working days to complete.

II. SITE CONDITIONS AND BACKGROUND

Site ID#: 09MU
CERCLIS ID#: CAN000906127

A. Site Description

1. Physical location

The Site consists of one entire hangar building (Building A-465) and one hangar suite (Building B-320, Hangar 12) located on the grounds of the Chino Airport, 7000 Merrill Avenue, Chino, San Bernardino County, California 91710. Chino Airport is a general aviation airport which also leases hangars for the restoration of historic aircraft.

Building A-465 is on land owned by the San Bernardino County Department of Airports, which directly leases Hangar 11 to the current tenant, Heritage Aero, Inc. (Heritage). Building B-320 is also

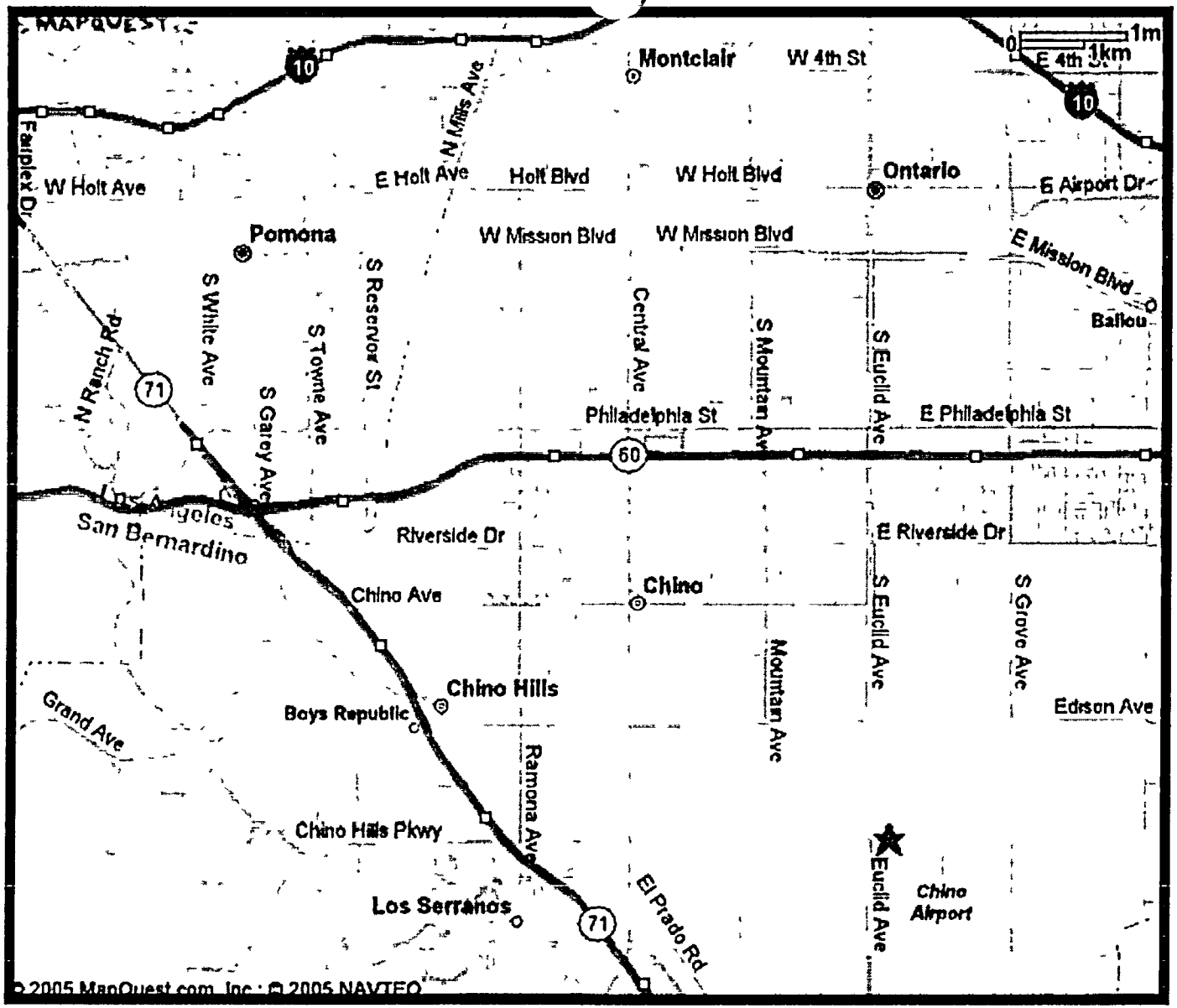


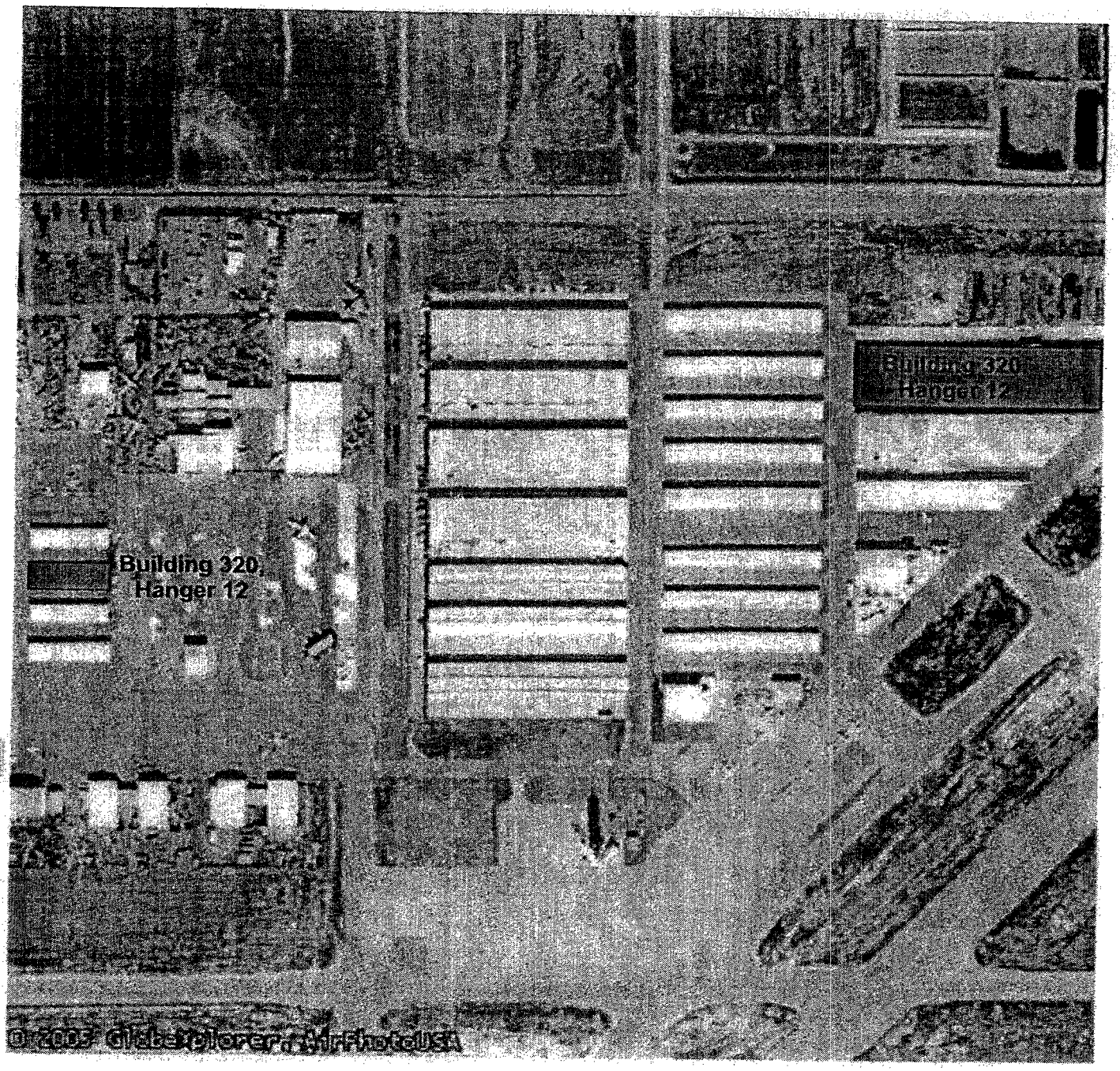
Figure 1: Site Location Map

Chino Airport Radium Dials

SSID#: 09MU

7000 Merrill Ave.

Chino, San Bernardino County, California



Map Key: Areas of Dial Storage

Figure 2

SITE MAP

Chino Airport Radium Dials

SSID#: 09MU

Chino, San Bernardino County, California

on land owned by the San Bernardino County Department of Airports, but this Building is leased to the Chino Development League (CDL), which subleases the hangars to individuals and corporations, including Hangar 12, which it currently leases to Heritage.

Building A-465 is a corrugated steel skin hangar building with 12 hangar suites. Each individual suite is separated by chainlink fence. The air space throughout the entire building is contiguous. The radium dials owned by Heritage in Building A-465 are located in Hangar 11, which is in the south eastern end of the building. The approximate size of Hangar 11 is 30' x 30'. The suite is accessed either through a large roll-up style door or through a personnel door in the middle of the roll-up door.

Building B-320, Hangar 12 is an individual unit within Building B-320. The hangar is concrete tilt up construction. There is no common ventilation between it and adjacent hangars. Hangar 12 is on the north, middle section of the building. Hangar 12 is accessed through a large folding door or through a personnel door in the middle of the folding door.

2. Background and site characteristics

Both Building A-465, Hangar 11 and Building B-320, Hangar 12 contain aircraft gauges that are believed to have originated from the Preservation Aviation, Inc. (PAI) Site (SSID#: 09LX), located in North Hollywood, Los Angeles County, California. A large majority of the gauges are World War II surplus purchased from the United States Department of Defense (DoD). The gauges are known to contain radium paint, and are contaminated with radium or its decay products, and may contain listed and characteristics hazardous waste pursuant to the Resource Conservation and Recovery Act (RCRA).

Building 320, Hangar 12 was originally discovered after an anonymous caller contacted the EPA Criminal Investigation Division (CID) in Pasadena, California on April 15, 2002, reporting that the hangar lessee was entering the PAI Site in violation of a California Department of Health Services, Radiologic Health Branch (RHB) Order, and transferring items to the Chino Airport. CID referred the Site to the San Bernardino County Fire Department (SBCoFD). SBCoFD subsequently notified RHB in April 15, 2002. On May 31, 2002 and July 1, 2002, RHB conducted radiation surveys at the Chino Airport in the area where the Airport's property manager believed that the business owner of PAI had leased a hangar. During its investigation, RHB detected the presence of radiation above normal background levels using real-time instrumentation at Building B-320, Hangar 12. On July 3, 2002, RHB and the San Bernardino County District Attorney's Office Special Prosecutions Investigator served a State search warrant at Building B-320, Hangar 12. During the execution of the State warrant, "tens of thousands" of radium gauges and meters were observed, some of which were found to be non-intact. RHB considers dials that are physically broken to be non-intact. During the execution of the search warrant, the lessee arrived on-site and was verbally advised by RHB that he must cease to occupy Building B-320, Hangar 12, and would not be permitted to remove radioactive items from the hangar without oversight by RHB. The search warrant is attached in Appendix A.

On July 5, 2002, RHB issued a written order to the lessee to cease occupation of and use of radioactively-contaminated objects located at Building B-320, Hangar 12 due to the presence of radiation emitting from an estimated 1,000 to 10,000 aircraft gauges and meters, some of which were physically compromised. The Order also stated that RHB detected elevated levels of radiation inside the aforementioned hangar. The Order directed the lessee to decontaminate the hangar and to submit a work plan to RHB regarding the disposal and cleanup of all non-intact radium gauges and meters. The hangar lessee initially hired a consultant to do the work, but only minimal work was completed. All work by the lessee's consultant was terminated by March 2003. The lessee ceased paying rent on the Building B-320, Hangar 12 in October 2001, essentially abandoning the items in the hangar.

In July 2004, EPA personnel, including OSC Wise and three staff scientists from EPA's Radiation and Indoor Environments National Laboratory (RIENL), visited Building 320, Hangar 12. Gamma radiation dose rate monitoring during the Site visit indicated gamma dose rates outside the hangar of up to 50 micro Roengten per Hour (μR/hr) and greater than 500 μR/hr inside the unit (background is approximately 10 μR/hr). EPA observed that the front door to the hangar was not secure, thus the facility was uncontrolled. EPA personnel interviewed the Chino Airport manager and learned that the lessee had leased other hangars on the property. The results of this investigation were forwarded to RHB. On September 4, 2004, RHB investigated the additional hangars and determined that Building A-465, Hangar 11 contained unlicenced radiation sources (radium dials) that were being stored illegally. California regulations require that one must obtain a radioactive materials license to possess non-intact radium containing instruments. On September 30, 2004, RHB entered Building 465, Hangar 11 and found approximately 2,000 radium gauges and dials including several physically broken dials. At that time, the lessee was issued a Notice of Violation (NOV) for possessing radioactive materials without a radioactive materials license and instructed not to enter the structure without RHB approval. RHB observed an additional 6,000 - 7,000 gauges and dials in the structure, which it did not examine.

3. Removal site evaluation

3.1 Airport Hanger Gamma Radiation Assessment

On February 24, 2005, the EPA RIENL Scanner Van conducted a survey for gamma radiation at the Chino Airport to assess the presence of radium. The Scanner Van is a step van that contains several large computer integrated sodium iodide scintillators that can detect small quantities of gamma radiation levels in the environment. The largest detector is shielded for directional scanning. The survey was based on information provided by RHB that radium containing aircraft gauges (from the PAI Site) were illegally stored at the airport. The survey was conducted in cooperation with RHB to determine if the current lessee, Heritage, possessed additional radium instrument storage locations. Results indicated that an anomalous source of gamma radiation inside the east end of Building A-465, Hangar 11 was producing an exposure rate of more than 20 times the measured background of the area. Another anomalous source of gamma radiation of more than 4 times background was detected at

Building B-320, Hangar 12. The Scanner Van data is located in Appendix B. Additional anomalies were also detected and this information was forwarded to RHB for further investigation.

3.2 FBI Search Warrant

At the request of the Los Angeles Hazardous Waste Strike Force headed up by the U.S. Attorney's Office (USAO), the Scanner Van data was provided to the Federal Bureau of Investigation (FBI). The FBI is currently investigating the illegal storage of hazardous and radioactive waste at the PAI Site in North Hollywood, Los Angeles County, California, which is operated by the same individual who operates Heritage at the Chino Airport. Based on the data and review of documents provided by RHB, the FBI obtained search warrants for three Buildings at Chino Airport (A-465, Hangar 11; A-460, Hangar 11; and B-320, Hangar 12) that are leased to Heritage. EPA's Criminal Investigation Division (EPA CID) was advised of the search by the USAO and provided a copy of the warrants. A copy of one of the search warrants (which were essentially identical) is attached at Appendix C.

On March 10, 2005, the FBI executed the search warrants. The participants to the search included an FBI Environmental Crimes Investigator and personnel from the FBI Hazardous Materials Response Team - Los Angeles (HMRT), the FBI Hazardous Materials Response Unit - Washington, D.C. (HMRU), the CA RHB, and the EPA Emergency Response Team which consisted of representatives from the U.S. Coast Guard Pacific Strike Team, OSC Wise, personnel from the Superfund Technical Assessment and Response Team (START) contractor, the Emergency and Rapid Response Services (ERRS) contractor, and a RIENL scientist.

The search warrant assessment revealed gross contamination of radium-226 and radon-222 throughout both Building A-465, Hangar 11 and Building B-320, Hangar 12. Damaged and leaking gauges result in gross "removable" and "fixed" radioactive contamination. Removable radiation is the quantity of radioactive material on a surface that may be removed by lightly wiping the surface with filter paper. Fixed activity is not removable from the surface when wiped with a filter. Removable radiation can spread and contaminate non-radioactive materials through direct contact, wind, or rain, while fixed radiation cannot migrate. Removable contamination presents a greater health hazard due to its potential to migrate off-site or become
airborne.

Building A-456, Hangar 11 was searched first. During the assessment air sampling and radiation monitoring indicated the presence of elevated levels of radon above the 4 pico curies per liter of air (pCi/l) action level for residences (See Table 1: Radon Data), elevated levels of airborne alpha and beta radiation (See Table 2: Air Surveillance Data), and gamma dose rates up to 4,000 uR/hr (See Table 3: Gamma Radiation Dose Rate Data). The surface and airborne radioactive contamination demonstrates the active release of hazardous substances (radium) from the aircraft gauges on-site. Radiation surveys and wipe sampling documented fixed alpha emitter contamination and removable

alpha and beta emitter contamination above the U.S. Atomic Energy Commission[1] Regulatory Guide 1.86 (RG 1.86) (See Table 4: Radioactive Contamination Survey). The presence of radium was confirmed by RIENL and RHB using multi-channel gamma spectrometers.

The RG 1.86 is used as guidance in the decontamination and termination of licensed nuclear reactors (attached in Appendix D). EPA uses the activity levels established under this guide as response action levels for radiation-contaminated buildings, and for decontamination of structures for unrestricted land use by the general public. This guide established limits for residual radioactivity on surfaces (not volumetric or contained reactivity) in terms of disintegrations per minute (dpm). Disintegrations per minute corresponds to activity, with 1 picocurie (10^{-12}) = 2.2 dpm. Disintegration per minute can be directly determined using direct monitoring. Disintegrations per minute equal counts per minute (cpm) divided by the efficiency of the detector for the isotope of concern. The RG 1.86 actions levels for radium-226 are 100 dpm/per 100 square centimeters of surface area (dpm/100 cm^2) for fixed contamination averaged over a surface area of 1 square meter; 300 dpm/100 cm^2 maximum fixed contamination and 20 dpm/100 cm^2 for removable contamination. The RG 1.86 guidance has been used to determine removal action levels for radioactive materials at the Preservation Aviation, Inc. Site in Region 9, Carey Electronics Site in Region 5, the Gulf Nuclear Site in Region 6, and the Radium Chemical National Priority List (NPL) Site in Region 2.

Air surveillance data indicates that an individual working in Building A-465 would exceed the maximum total effective dose equivalent (TEDE) of 100 mrem per year (mrem/yr) allowable to individual members of the public from a licensed facility pursuant to 10 CFR § 20.1301(a)(1). According to Chino Airport and RHB officials, a tenant in a hangar adjacent to Hangar 11 works approximately 60 hours per week, which would result in a TEDE in excess of 100 mrem/yr. Building A-465, Hangar 11 is not an RHB radioactive material licensed facility.

Table 1: Radon Data

Radon Data Building A-465, Hangar 11			
Date	**Maximum (pCi/L)**	**Mean (pCi/L)**	**Action Level (pCi/L)**
March 10, 2005	21.7	17.8	4
March 13, 2005	34.8	21	4
March 14, 2005	15	6.5	4

[1] The U.S. Atomic Commission, created in 1946, was dissolved in 1974 and its responsibilities were transferred to the Energy Research and Development Administration (now under the U.S. Department of Energy) and the Nuclear Regulatory Commission.

Table 1: Radon Data			
March 15, 2005	26.5	15.6	4
March 16, 2005	25.3	17.4	4
March 17, 2005	28.4	19.4	4
March 18, 2005	23.2	16.6	4
March 19, 2005	28.5	19.6	4
Radon Data Building B-320, Hangar 12			4
March 10, 2005	9.78	9.02	4

Table 2: Air Surveillance Data[1]		
Air Samples for Radioactive Particulates		
Sample ID	**Alpha Emitter (dpm)**	**Beta Emitter (dpm)**
A-465-01A	13269	2180
A-465-01B	24325	35175
A-465-01C	23049	32817
B-320-01A	104322	53412
B-320-01B	108263	44302

1: Typical background levels of alpha radiation for air samples is 2-8 dpm. Data on background beta radiation was not available.

Table 3: Gamma Radiation Dose Rate Data		
Location	**Exposure Measurement[1] (μR/hr)**	**Comments**
Building A-465		
Background	10	outside building
Hangar 11	700 - 4000	4000 μR/hr detected in the center of a crate of dials
Adjacent Hangar, northeast of Hangar 11	60 - 200	60 μR/hr noted along outside of office inside hangar
Hangar Exterior	300	Outside front door

Table 3: Gamma Radiation Dose Rate Data		
Location	**Exposure Measurement[1] (μR/hr)**	**Comments**
Building B-320, Hangar 12		
Background	10	Outside hangar
Hangar Interior	50 - 2000	2000 μR/hr noted along 55 gallon drum in southeastern section of the hangar
Hangar Exterior	50	Outside front door

1: Radiation dose is defined as the energy absorbed in matter from ionizing radiation. Radiation dose is defined by units of radiation absorbed dose. (rad). As a practical matter, 1 roentgen (R) produces a radiation dose in human tissue of approximately 1 rad, thus units of R and rad are interchangeable. Common units of the rad and R are milli (m)rad or mR and micro(μ) rad or μR. Environmental radiation instruments measure dose rate and are typically expressed in units of μR/hr. Dose relative to biological effects on humans is measured in roentgen equivalent man (rem) For gamma and beta radiation there is an approximate 1:1 correlation between R, rad and rem. However, for alpha radiation there is an approximate 1:20 correlation between R, rad and rem for internal human exposure.

Table 4: Radioactive Contamination Survey					
Sample ID	Direct[1] Reading (cpm)	Direct Reading (dpm)	Removable Contamination		Sample Description
			Alpha (dpm)	Beta (dpm)	
CA-465-01	30	[redacted]	0	0	Crate Surface
CA-465-02	737	[redacted]	29	47	Broken Dial
CA-465-03	21690	[redacted]	32	45	Dial
CA-465-04	30	[redacted]	0	5	3-gallon canister containing a dial
CA-465-05	23	[redacted]	0	7	Roll-Up Door
CA-465-06	18	[redacted]	3	0	Floor
CA-465-07	21	[redacted]	39	45	Cardboard box containing a dial
CA-465-08	10	67	0	0	Floor in adjacent hangar
CA-465-09	20	[redacted]	6	10	Lathe surface in adjacent hangar
CA-320-01	9	60	0	12	Plastic sheeting on floor
CA-320-02	44	[redacted]	6	22	Floor
CA-320-03	78	[redacted]	13	0	Dial

Table 4: Radioactive Contamination Survey					
Sample ID	Direct[1] Reading (cpm)	Direct Reading (dpm)	Removable Contamination		Sample Description
			Alpha (dpm)	Beta (dpm)	
CA-320-04	12	80	0	45	Roll-up door
CA-320-05	14	94	9	25	Wall
CA-320-06	167	[redacted]	3	32	Broken dial
CA-320-07	41		6	37	Toilet
CA-320-08	13	87	9	35	Drum
[redacted]	Exceeds Rg 1.86 fixed contamination levels of 100 dpm/100 cm^2 for radium contamination				Exceeds RG 1.86 removable contamination levels of 20 dpm/100 cm^2 for radium (alpha) contamination

1: Field activity measurements are made with portable survey detectors which measure alpha radiation detections as counts per period of time with counter per minute (cpm) being the most common Disintegrations per minute(dpm) equals the number of radioactive decays occurring from a radioactive material, which is the measurement of curies Properly calibrated survey instruments are used to establish surface contamination values in activity units (dpm) by correcting for detector efficiency, geometric factors

RG 1.86 identifies three types of radioactivity surface measurements average fixed activity, maximum fixed activity and removable activity. Removable radiation is the quantity of radioactive material on a surface that may be removed by lightly wiping the surface with filter paper. Average fixed activity is measured directly on a surface or an area not to exceed one square meter Maximum activity is measured directly with a detector on a surface at any point on the object (hotspot) Fixed activity is not removable from the surface when wiped with a filter.

The FBI had a warrant to search Building A-460, Hangar 11; however, the Scanner Van survey did not detect radioactive materials inside this hangar. The hangar was searched by the FBI for documents only. RHB conducted a radiation survey inside the hangar and confirmed the Scanner Van findings. Building A-460, Hangar 11 requires no further attention from EPA.

The last location searched was Building B-320, Hangar 12. This location is currently under the physical control of RHB. RHB secured this hangar in July 2002 after the initial State search warrant was executed. RHB issued a Cease and Desist Order against the hangar lessee to prevent him from entering the hangar or removing any items without RHB oversight. Hangar 12 is a concrete tilt up building with a large steel door on the front. Each hangar in this building is a separate unit with no access to other units or common ventilation. Assessment operations conducted by EPA documented the presence of fixed contamination above RG 1.86 action levels (See Table 4). Air surveillance inside this hangar documented elevated levels of radioactive particulates and radon (See Table 1 and 2). Radon concentrations exceeded the EPA residential and unlicenced action level of 4 pCi/l. Gamma radiation dose rates were documented up to 20 times background levels inside the hangar and 5 times background levels outside the hangar. The internal dose equivalent for one occupational man year for Building B-320, Hangar 12 exceeds 60 mrem/yr. This structure is unoccupied at this time.

3.3 EPA Enforcement

Please refer to the enforcement addendum in Appendix E.

3.4 Emergency Stabilization

On March 11, 2005, OSC Robert Wise, utilizing his delegated warrant authority to implement an emergency stabilization measure, placed a ventilation system inside Building 465, Hangar 11 to filter the air, and covered the radioactive materials with visqueen to prevent further migration of contaminated particulates. The negative air machine was placed in Hangar 11 as it contains the source material; however, the contamination problem may exist throughout the entire building. Although EPA issued CERCLA General Notice letters to the identified Potentially Responsible Parties (PRPs), no PRP response was sufficient to mitigate these emergency issues in this Hangar in a timely manner.

The negative air machine passes air through a HEPA filter to remove airborne particulates creating a negative pressure environment inside the building. It also collects radon gas, which is continuously generated from the gauges, and removes it from the building through an exhaust line through the roof. Radon monitoring at the exhaust from the negative air machine has documented radon at background levels because the radon immediately mixes with the air and dilutes when exiting the structure. The HEPA filter is changed every 2-3 days. The negative air machine places a slight vacuum on the air flow out of the structure and reduces the uncontrolled migration of radioactive particulates and radon gas from the structure. It also allows for a flushing effect to lower the contamination levels of structural contamination inside the building.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Based on EPA's site assessment, a large number of the gauges in Building A-465, Hangar 11 and Building B-320, Hangar 12 either contain radium paint or are externally contaminated with radium or its decay progeny. The decay progenies of concern from radium are radon-222 (alpha), lead-210 (beta), bismuth 214 (gamma), and polonium-210 (alpha), which decay in equilibrium with radium. Most of these progenies remain trapped with the radium paint matrix. Radon-222 decays with a 3.8 day half life. However, the presence of radon in the hangar in excess of the EPA residential limit for radon and radioactive particulates indicates that many of the radium containing materials (RCM) dials are not intact and are leaking radon.

Radium continually decays to radon. Radium and radon primarily emit alpha particles and some gamma rays and are considered carcinogens. Radium-226 exists in a solid state whereas radon-222 is a gas. There continues to be a quantity of radon gas in excess of EPA action levels present in both hangar structures because of the constant decay of radium. When radon gas decays, it tends to bind with dust particles or precipitate out on surfaces. Once the gauges are removed, the radon gas will no longer be a hazard. Lead-210 and polonium-210 will remain in the building structure until it is decontaminated. The average gamma radiation exposure dose rate (the amount of exposure per unit of

time) inside these structure ranges from 10 to 400 times the ambient background levels of 10-15 μR/hr, including gamma emissions from radium and its decay progeny. EPA measured the radon activity level inside both hangars and it was in excess of the EPA radon limit for a residential dwelling (See Table 1). Air surveillance data document exposure levels in excess of the 100 mrem/yr maximum allowed dose for a member of the public pursuant to 10 CFR § 20.1301(a)(1). The airborne particles, radon present, and airborne radioactive environment inside the hangars necessitate the exclusion of all persons not wearing the appropriate respiratory protection from Building A-465 and Building B-320, Hangar 11.

The radium painted gauges exhibit a phenomenon called "alpha recoil." This process moves radium atoms or groups of atoms out of their original matrix (paint) and out of their original holder (the gauge) over time. It is a process that cannot be stopped by physical or mechanical means. Over time, the alpha recoil phenomenon has resulted in radium, and its progeny, contaminating the CARD Site structures, shelves, floors and other non-radioactive materials. Radium and its progeny are readily available for re-suspension and release as contaminated dust upon moving any item inside the building.

5. National Priority List (NPL) status

This Site is not on the NPL.

6. Maps and photographs

Please see the Figures 1 and 2 for Site layout and location. Aerial photographs documenting Scanner Van findings are represented in Attachment C.

B. <u>Other Actions to Date</u>

After examining the data and obtaining concurrence with an RHB Certified Health Physicist and NRIEL scientists on-site and in the Las Vegas National Laboratory, OSC Wise advised that Building A-465 should be quarantined due to the presence of uncontrolled radioactive materials and common airspace throughout the entire building. Building A-465 is a steel building with the individual suites separated by a chain link fence. OSC contacted the San Bernardino County Fire Department (SBCoFD) and advised it of the situation in Building A-465. SBCoFD forwarded the information to the Chino Valley Independent Fire District (CVIFD). Based on the assessment data, CVIFD red tagged Building A-465 to prohibit members of the public from entering this Building until such time as the public health threat has been abated.

EPA initiated an emergency stabilization response using the OSC's warrant authority on March 11, 2005 and placed a negative air machine in Building A-465, Hangar 11 to remove airborne particulates and radon from the building. On March 13, 2005, a real-time radon detector was placed in Building A-465, Hangar 11. Examination of the data on March 14, 2005 initially indicated that the radon levels were starting to drop demonstrating the negative air machine was working. START assessed an office immediately adjacent to Hangar 11 in Building A-465 to determine if it could be re-

occupied. This office is separate from the rest of the building and does not have common ventilation. The data indicated no residual radioactive contamination; therefore, this particular office was reopened for the business owner's use, with the agreement that he would seal any air leaks contiguous to the adjacent hangars.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health, or Welfare or the Environment

Conditions at the CARD Site present a release and the potential threat of release of a CERCLA hazardous substance threatening the public health or welfare or the environment based upon factors set forth in 40 C.F.R. § 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). These factors include:

1. Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations or the food chain.

This factor is present at the facility due to the presence of Radium-226 and its decay progeny Radon-222 and chlorinated and non-chlorinated liquids suspected (based on identical gauges containing solvents found at the PAI Site) in aircraft gauges on-site. Radium is present in dials and gauges located in Building A-465, Hangar 11 and Building B-320, Hangar 12. Airborne radon and other radioactive contamination has been documented in both hangars utilizing radiation detectors with on-site analysis (See Tables 1 - 4). EPA estimates that there are in excess of 10,000 aircraft gauges stored at the Chino Airport.

Radium-226 and its progeny are listed hazardous substances pursuant to 40 CFR § 302.4, Appendix B. Radium and radon are confirmed human carcinogens. Radon gas is the second leading cause of lung cancer. There is an aircraft parts (non-radium gauges) restoration business located in a hangar adjacent to Hangar 11 in Building A-465, and the owner of the business spends at least 60 hours per week working in the structure. Due to elevated levels of radon, he is potentially exposed to inhalation of alpha emitters on a continuous basis. This exposure coupled with the elevated gamma dose rates inside the hangar would result in a TEDE in excess of 100 mRem/yr in violation of 10 CFR § 20.1301(a)(1). Limited sampling inside this hangar documented residual radioactive contamination from the dials in Hangar 11 (See Table 4).

During the PAI Site radium gauge removal action, mercury, methyl isobutyl ketone, 2-butanone, acetone, toluene, benzene, xylenes, ethyl benzene, and trichloroethene were discovered inside the gauges. These chemicals are RCRA Characteristic and Listed Hazardous Wastes pursuant to 40 CFR § 261. Identical gauges containing the solvents have been found inside Building A-465, Hangar 11 in large quantities. The liquids are integrated into the gauges in glass ampules or in free form inside compasses. Vintage electrical equipment containing an unknown oil has also been documented in

Building A-465, Hangar 11. In Building B-320, Hangar 12, containers of various solvents were observed and sampled during the FBI search. Confirmatory analytical data is pending. These solvents pose threats through inhalation and ingestion which can result in neurological, kidney, and liver damage, and behavior and learning problems. The solvents are currently contained within the dials, however mishandling or damage to the dials would result in their release to the environment.

2. High levels of hazardous substances or pollutants or contaminants in soils at or near the surface that may migrate.

This factor is present at the facility due to elevated levels of radium-226 and its decay progeny that are continuing to migrate from the dials as radon gas and radioactive particulates and which may migrate out of Hangar 11 in Building A-465 and into adjacent hangars due to the contiguous nature of the airspace in this structure. Contaminated dust may become resuspended in air that is released outside the hangar or transferred as contamination to other parts of the building. Limited sampling in an adjacent hangar has documented residual radioactive contamination.

Gamma dose rates at the exterior of both buildings were significantly above background (See Table 3).

3. Availability of other appropriate Federal or State response mechanisms to respond to the release.

Neither SBCoFD or CVIFD have the financial or technical resources to respond to this time-critical response action. The California Department of Toxic Substance Control (DTSC) funds may not be used for response actions involving the cleanup of radioactive materials. RHB does not have funds designated for the cleanup of radioactive wastes.

IV. ENDANGERMENT DETERMINATION

The current site conditions, the presence of radium-226 and its progenies such as radon-222, pose serious threats to human health and the environment through direct contact, inhalation, and ingestion. Radium and its progeny are listed hazardous substances under the NCP and 40 C.F.R. § 302.4, Appendix B, and are hazardous substances under section 101(14) of CERCLA.

Actual releases of hazardous substances from this Site continue to present an imminent and substantial endangerment to public health, welfare, or the environment. If the proposed removal action is not taken to reduce, abate and prevent releases to the environment from this Site, as described in this memorandum, the continued and perhaps exacerbated release of radium will endanger public health and welfare, and the environment

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The purpose of this removal action is to mitigate the threats posed to public health or welfare or the environment by the presence of uncontrolled hazardous substances including radium, radon, and RCRA listed and characteristic wastes at the CARD Site. Removal activities at the Site are to include: the characterization and removal of all radium containing/contaminated aircraft gauges and equipment and the off-site transportation and disposal of identified hazardous substances and wastes and contaminated media (metal, plastic, paper, or cardboard). Specifically, the following activities are proposed:

- Develop and implement a site specific work plan including a time-line of activities;
- Develop and implement a site specific radiation health and safety plan;
- Develop and implement an air monitoring and sampling and analysis program to ensure there is no off-site release of radium and radon;
- The gauges will be segregated into radium containing materials (RCM) and surface contaminated objects (SCO), which are contaminated with radium or its decay products. Gauges will be disposed of according to the waste category. All debris removed from either Buildings A-465 or Building B-320, Hangar 12 will be disposed of as SCO due to contamination from radium particulates or radium decay progeny;
- Remove gauges and debris from the CARD Site as that are identified as radioactive waste;
- Segregate all chemicals into hazardous waste and mixed waste.
- Assess radioactive contamination in Building A-465. Perform an assessment characterization of structural contamination, airplanes, and other items. The assessment will be conducted following the guideline promulgated in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).
- Assess radioactive structural contamination in Building B-320, Hangar 12 following the MARSSIM guidelines.
- Transport and dispose of all characterized or identified hazardous substances, pollutants, wastes, or contaminants at a disposal facility in accordance with the U.S. EPA Off-Site Rule, 40 C.F.R. § 300.440.

Building A-465 will be addressed first. Building B-320 will be addressed second.

2. Contribution to remedial performance

Long-term remedial action at this Site is not anticipated. It is expected that this removal action

will eliminate all threats of direct or indirect contact, combustion, or inhalation of hazardous substances at the CARD Site. There is no known groundwater contamination at the Site, and EPA considers it unlikely that significant groundwater contamination exists. Consequently, EPA considers this a final action for the CARD Site.

3. Description of alternative technologies

Alternative technologies will be evaluated to determine the safest and most cost efficient manner in which to address building decontamination. All radioactive waste will be disposed in an approved disposal facility consistent with EPA's Off-Site Rule.

4. Applicable or relevant and appropriate requirements (ARARs)

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines applicable requirements as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant

Section 300.5 of the NCP defines relevant and appropriate requirements as cleanup standards, standards of control and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site and are well-suited to the particular site.

Because CERCLA on-site response actions do not require permitting, only substantive requirements are considered as possible ARARs. Administrative requirements such as approval of, or consultation with administrative bodies, issuance of permits, documentation, reporting, record keeping, and enforcement are not ARARs for the CERCLA actions confined to the Site.

Only those state standards that are identified by a state in a timely manner and are more stringent than federal requirements may be applicable or relevant and appropriate. The State of California has not directly identified state ARARs at this time, however, the state regulations listed below will be considered.

The following ARARs have been identified for the proposed response action. All can be attained.

Federal ARARs: The RCRA Land Disposal Restrictions, 40 C.F.R. 268.40 Subpart D implemented through Title 22 Section 66268.40; the CERCLA Off-Site Disposal Rule 40 C.F.R. 300.440; RG 1.86: Termination of Operating Licenses for Nuclear Reactors; 10 C.F.R. Part 20 Subpart C: Occupational Dose Limits; 10 C.F.R. Part 20 Subpart E: Radiological Criterial for License Termination; 29 C.F.R. 1910.120: Hazardous Waste Operations and Emergency Response; and the U.S. Department of Transportation of Hazardous Materials Regulations 49 C.F.R. Part 171, 172 and 173.

State ARARs: Title 22, California Code of Regulations (C.C.R.) Article 3: Characteristics of Hazardous Waste; Title 22 C.C.R. Article 4: Lists of Hazardous Wastes; Title 22 C.C.R. Article 5: Categories of Hazardous Waste and 17 C.C.R. 30253: Standards for Protection Against Radiation.

5. Project schedule

It is estimated that the proposed activities will require another 15 on-site working days to complete the removal of all radioactive materials identified on-site. This does not include the time required for START to complete its MARSSIM assessments of the buildings.

B. Estimated Costs

Removal costs account for the removal of all hazardous substances from both Buildings and the decontamination of the hangars.

Regional Removal Allowance Costs

Cleanup Contractor	$500,000
START Contractor	$200,000
Pacific Strike Team	$ 50,000
Extramural Subtotal	$ 750,000
Extramural Contingency (20%)	$150,000
TOTAL, Removal Action Project Ceiling	$ 900,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented, and the potential exposure pathways to nearby populations described in this memorandum, actual or threatened releases of hazardous substances from the Chino Airport Radium Dial Site, if not addressed by implementing the response actions proposed in this memorandum, may present an imminent and substantial endangerment to public health or welfare, or the environment. As stated in Section V of this memorandum, Site conditions constitute an immediate risk to public health that requires abatement as an exception to the statutory response cost limitation.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues presented by this Site.

VIII. ENFORCEMENT

Please see the attached Confidential Enforcement Addendum in Appendix E for a discussion regarding potentially responsible parties. In addition to the extramural costs estimated for the proposed action, a cost recovery enforcement action also may recover the following intramural costs:

Intramural Costs[2]

U.S. EPA Direct Costs	$70,000
U.S. EPA Indirect Costs (38.03%)	$37,000
TOTAL Intramural Costs	$100,700

The total EPA extramural and intramural costs for this removal action, based on full-cost accounting practices, that will be eligible for cost recovery are estimated to be $1,007,000.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Chino Airport Radium

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1.Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgement interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

Dial Site developed in accordance with CERCLA, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site. The Index for the Administrative Record for the Site is listed in Attachment E.

Conditions at the Site meet the NCP criteria for a removal action under 40 C.F.R. § 300.415(b)(2). I recommend your approval of the proposed removal action. The total project ceiling if approved will be $1,007,000, of which an estimated $900,000 comes from the Regional Removal Advice of Allowance.

Approve: _____ 4/7/05

Daniel Meer — Date
Branch Chief
Response Planning and Assessment Branch

Disapprove: _____ _____

Daniel Meer — Date
Branch Chief
Response Planning and Assessment Branch

Enforcement Addendum
Appendices
A: State Search Warrant
B: Scanner Van Data
C: FBI Search Warrant
D: RG 1.86
E: Index to the Administrative Record
Figures
1. Site Location map
2. Airport Diagram
cc: Sherry Fielding, U.S. EPA, OEM, 5202-G
cc (w/o Conf. Enf. Addendum):
Director, California Department of Toxic Substances Control
Director, California Department of Health Services
Peter Brierty, Fire Marshal, San Bernardino County Fire Department
Edgar Bailey, Radiological Health Branch
U.S. Department of the Interior

bcc: Keith Takata, Region 9, SFD-1
Daniel Meer, Region 9, SFD-9
Pete Guria, Region 9, SFD-9-2
Celeste Temple, Region 9, SFD-9-2
John Jaros, Region 9, SFD-9-2
Robert Wise, Region 9, SFD-9-2
Sara Goldsmith, Region 9, ORC-3
Peggy DeLatorre, Region 9, PMD-6
William Carter, U.S. Attorneys Office

APPENDIX A:
SAN BERNARDINO COUNTY DISTRICT ATTORNEY'S OFFICE SEARCH WARRANT FOR BUILDING B-320, HANGAR 12

SW No.

STATE OF CALIFORNIA-COUNTY OF San Bernardino
SEARCH WARRANT AND AFFIDAVIT

(AFFIDAVIT)

William Sellers, being sworn, says that on the basis of the information contained within this Search Warrant and Affidavit and the attached and incorporated Statement of Probable Cause, he/she believes the information set forth in this document to be true, and therefore has probable cause to believe and does believe that the property described below is lawfully seizable pursuant to Penal Code Section § 1524, as indicated below, and is now located at the location(s) set forth below. Wherefore, affiant requests that this Search Warrant be issued. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

William Sellers: NIGHT SEARCH REQUESTED: YES ( ) NO (X)
(Signature of Affiant)

(SEARCH WARRANT)

THE PEOPLE OF THE STATE OF CALIFORNIA TO ANY SHERIFF, POLICEMAN, OR PEACE OFFICER IN THE COUNTY OF San Bernardino: proof by affidavit having been made before me by, William Sellers that there is probable cause to believe that the property described herein may be found at the location(s) set forth herein and that it is lawfully seizable pursuant to Penal Code Section § 1524 as indicated below by "X"(s) in that it:

_____ was stolen or embezzled

_____ was used as the means of committing a felony

_____ is possessed by a person with the intent to use it as means of committing a public offense or is possessed by another to whom he or she may have delivered it for the purposes of concealing it or preventing its discovery

XX tends to show that a felony has been committed or that a particular person has committed a felony.

_____ tends to show that sexual exploitation of a child, in violation of P.C. § 311.3, has occurred or is occurring

YOU ARE THEREFORE COMMANDED TO SEARCH:

SEE ATTACHED LOCATION(S) TO BE SEARCHED

FOR THE FOLLOWING PROPERTY:

SEE ATTACHED PROPERTY TO BE SEIZED

AND TO SEIZE IT IF FOUND and bring it forthwith before me, or this court, at the courthouse of this court. This Search Warrant and incorporated Affidavit was sworn to and subscribed before me this 2nd day of July, 2002, at 8:30 A.M./P.M. Wherefore, I find probable cause for the issuance of this Search Warrant and do issue it.

_____, NIGHT SEARCH APPROVED: YES ( ) NO ( )
(Signature of Magistrate)

Judge of the Superior Court, County of San Bernardino, Central Judicial District

LOCATION NO. 1: **Preservation Aviation**
700 Merrill Avenue
Building 320, Hangar 12
Chino Airport
Chino California
County of San Bernardino

A Business known as Preservation Aviation, located at 700 Merrill Avenue, Building 320, Hangar 12, Chino Airport, Chino California.

Building 320 is situated at the north/east portion of Chino Airport complex. Access is gained via several gates remotely operated by telephone or key access. The numbers 320 are stenciled at the west and east side of the tan colored hangar complex. A service road surrounds building 320. Stenciled on the aluminum entry door is the number 12.

The search of the above location shall include all rooms, file cabinets, desks, and drawer inside hangar 12.

Your affiant is requesting the search warrant authorize the appointment of non-sworn trained personnel from the State of California, Radiological Health Branch to act as agents of sworn peace offices. These individuals will act as site safety officers and be responsible for the collection of any and all evidence collected. In addition member of the Radiological Health Branch under the direction of sworn personnel will conduct sampling and perform non-destructive testing of any objects located at the search site. Non-destructive testing will be limited to taking swipes of objects at the search site and utilizing filter paper designed to capture radioactive material.

If radioactive objects or material are located at the site Radiological Health Branch personnel will determine the extent of contamination to the hangar and make the appropriate assessment on how best to secure or quarantine the site. In order to preserve the health and safety of the general public radioactive material or objects discovered at the site will be embargoed until a licensed radiological heath business can properly secure the objects.

The search warrant shall specifically authorize sworn personnel or their designee to photograph and/or videotape the location being searched in order to preserve the images of the scene, location of property to be seized, sampling collection and non-destructive testing.

PROPERTY TO BE SEIZED:

Any written material, sampling, and non-destructive testing relating to the criminal investigation described in the attached Affidavit and Statement of Probable cause and concerning crime outlined in the California Health and Safety Code Section 115215 such as: but not limited to, shipping papers, transportation documents, receipts, purchase orders, sales receipts, customer list, repair order, business ownership papers and documents, utility receipts that would tend to show ownership of the property, rental receipts for hangers located at Chino Airport, manuals, inventory lists, records of transfer or sales, placards, safety procedures, injury illness prevention program, exposure reports, safety meetings.

COUNTY OF SAN BERNARDINO
STATE OF CALIFORNIA

STATE OF CALIFORNIA	)	AFFIDAVIT
	) ss.	
COUNTY OF SAN BERNARDINO	)	IN SUPPORT OF SEARCH WARRANT
	)	
	)	Penal Code 1529

STATEMENT OF PROBABLE CAUSE

William Sellers, personally appeared before me this 2st day of July, 2002, who on oath, makes complaint, disposes and says:

Your affiant is a duly swom San Bernardino County District Attorney Investigator and has been for the past fourteen years. In addition, your affiant was a police officer for the City of San Bernardino and a deputy sheriff for the County of San Bernardino. In that capacity, your affiant had conducted hundreds of violations involving various California statutes.

Your affiant is a supervising investigator assigned to the District Attorney's Specialized Prosecutions Group.

The Specialized Prosecutions Group is charged with the investigation of crimes relating to the environment and CAL OSHA work place deaths. The Specialized Prosecutions Group is also the coordinating agency for the San Bernardino County Environmental Crimes Task Force. The task force is composed of enforcement and regulatory agencies such as:

- County Fire Hazardous Materials Division
- California Department of Fish and Game
- California Highway Patrol
- Department of Toxic Substance Control
- Various Fire Agencies
- CAL OSHA
- Santa Ana Regional Water Quality Control Board

The task force has successfully used the multi-agency concept to investigate a number of hazardous material release sites and businesses failing to properly comply with the State Hazardous Waste Control Act and CAL OSHA regulations.

. Your affiant has reviewed and is familiar with California Health and Safety Code Section 115215 (c) that states in part "any person who knowingly transports or causes the transportation of any radioactive material regulated by this chapter, or who reasonably should have known that the person was causing the transportation of the material, to a facility in the state that does not have a license from the department issued to pursuant to this chapter, to any point in the state that is not authorized by this chapter, or to any point in the state that is not authorized by any other local, state or federal agency having authority over radioactive materials, and is in violation of this chapter, or any regulation or order adopted pursuant to this chapter , is guilty of a public offense and, upon conviction, may be punished as follows":

California Health and Safety Code Section 115215 (1) states in part, "If the transportation is found to have caused a substantial danger to the public health and safety, the person may be punished by imprisonment in the county jail for not more than one year or by imprisonment in the state prison for 16, 24, or 36 months."

CURRENT INVESTIGATION:

On Thursday, May 23, 2002 Barbara L. Hamrick, Associate Health Physicist, Quality Assurance Unit, Radiologic Health Branch, (herein Rad Health) State of California contacted me regarding the possible illegal storage and transportation of approximately 300,000 plus radium aircraft gauges. Hamrick briefly explained that a Mr. Jeffrey W. Pearson had been ordered by Rad Health to cease use of a premise and objects at his business located at 10800 Burbank Blvd, North Hollywood, California. Pearson is the owner of Preservation Aviation. The business collects and maintains aircraft dials that contain radium, a radioactive material. I agreed to meet with Hamrick on Tuesday, May 28,2002.

Your affiant personally met with Barbara Hamrick on May 28, 2002 at the District Attorney's Specialized Prosecution Office. Hamrick explained that she is an Associate Health Physicist with the Department of Health Services. She is currently responsible for coordinating large-scale decommissioning projects that involve radioactive contaminated sites. She also provides technical support for field staff on complex issues and assists on long-term investigations as necessary. Hamrick received an M.S. Physics from the University of California, Irvine in 1987 and a law degree from Loyola Law School in 1999 and was recently admitted to the California Bar.

CID Involvement

Hamrick became involved with Jeffery Pearson and Preservation Aviation after an anonymous caller telephoned the Pasadena Office of the U.S.E.P.A reporting that "Jeff Pearson" is entering Preservation Aviation in North Hollywood, which the EPA sealed...over [an] issue involving radium dials, that Mr. Pearson is entering "at least once a week' and removing items;" and that " he is taking these items to one of his hangers at Chino Airport." The call was referred to Special Agent O.Z. Robertson. Having no jurisdiction over radiological material, the report was referred to San Bernardino County Health Specialist Ronnie Bromberg. County Health refers all radiological health questions to the Rad Health. Bromberg reported the call to Rad Health on April 15, 2002.

When Hamrick received the call from Bromberg she was immediately aware of Jeffery Pearson and Preservation Aviation by virtue of an ongoing investigation being conducted by Rad Health. Hamrick was aware of an order issued by the Radiological Health Branch on February 2, 2001. The order was issued to Jeffery W. Pearson/dba: Preservation Aviation, located at 10800 Burbank Blvd, North Hollywood, California and read **"ORDER TO CEASE TO USE OR OCCUPY PREMISES OF, AND TO CEASE TO USE OBJECTS AT 10800 BURBANK BLVD, NORTH HOLLYWOOD, CALIFORNIA."** The order further stated that Mr. Pearson "may not resume or permit any person to resume use or occupancy of 10800 Burbank Blvd., North Hollywood, California and that Mr. Pearson (you) may not resume or permit any person to resume use of the contaminated objects until disposal and decontamination have been accomplished and a release obtained from the Department."

Based on Barbara Hamrick's training and experience and the circumstance surrounding the potential illegal transportation and storage of a radioactive material I offered my assistance to the Department of Health Services. We agreed to meet at the Chino Airport on May 31, 2002.

On May 31, 2002, at 10:00 A.M. affiant met with Barbara Hamrick at Chino Airport. Hamrick had several instruments used to detect and measure radioactivity that are commonly referred to as Geiger Counters. The instruments require specific training to operate and decipher the measurements. Hamrick has received continuing education and training regarding the operation of the instruments.

We entered airport property at the east gate and drove to the airport managers' office. After identifying ourselves to the receptionist, I asked to speak with the airport manager and was informed he was not in. I then requested the hangar location of Jeffery Pearson or Preservation Aviation. The receptionist was not certain which specific hangar in building 320 that Pearson occupied other than it was on the north side of the hangar complex. Building 320 is leased to Chino Development League and according to the receptionist they would have the hanger number for Pearson.

Based on the sensitive nature of the investigation and recent media attention provided to the public regarding radioactive material, I elected not to contact Chino Development League for a precise location. Affiant and Barbara Hamrick believed that 300,000 or more radium gauges, their condition not known, were likely stored at hangar 320. Hamrick said as recently as June 5, 2002 an associate of Hamricks was at the Burbank facility of Preservation Aviation and estimated over 300,000 radium dials had been removed from the property in violation of the department's February 2, 2001 order. Hamrick also advised that if the radium gauges were not located at hangar 320, her instruments would provide that information to us. We then drove to hangar 320.

Hangar 320 is located at the far north/east end of Chino Airport. The metal building is several hundred yards in length and divided into numerous hangars. Utilizing the instruments that measure radiation,we began our survey walking slowly from east to

west from hangar 10. According to Hamrick, hangar 10 had normal background levels of radiation. Hangar 12 was surveyed next. Hamrick's instruments indicated the presence of a source of radiation above normal background levels. **(See attachment A)** Hangar 14 was next in line and indicated normal background level of radiation. At the conclusion of the survey and based on Hamrick's training and experience Hamrick indicated that hangar 12 contains a radioactive material that is not being stored in a proper manner and likely causing contamination of the building and contents.

Hamrick explained that if the radium gauges were not transported in a manner that insured public safety, the gauges could pose a substantial danger to the operator of the vehicle and general public. Hamrick said for instance if the vehicle transporting the gauges were involved in an accident resulting in a fire, a substantial danger from the radioactive smoke would result.

On July 1, at 12:10 P.M. your affiant again met with Barbara Hamrick at Chino Airport, building 320, hangar 12. Utilizing a Geiger counter and the same procedures as we did on May 31, 2002, we again confirmed the presence of a source of radiation above normal background levels.

Your affiant is requesting the search warrant authorize the appointment of non-sworn trained personnel from the State of California, Radiological Health Branch to act as agents of sworn peace offices. These individuals will act as site safety officers and be responsible for the collection of any and all evidence collected. In addition member of the Radiological Health Branch under the direction of sworn personnel will conduct sampling and perform non-destructive testing of any objects located at the search site. Non-destructive testing will be limited to taking swipes of objects at the search site and utilizing filter paper designed to capture radioactive material. Your affiant makes these request under Penal Code Section 1536.

If radioactive objects or material are located at the site,Radiological Health Branch personnel will determine the extent of contamination to the hangar and make the appropriate assessment on how best to secure or quarantine the site. In order to preserve the health and safety of the general public, radioactive material or objects discovered at the site will be embargoed until a licensed radiological heath business can properly secure the objects. Hamrick explained that any unnecessary movement of a radioactive material will pose an additional danger to the health and safety of the public.

The search warrant shall specifically authorize sworn personnel or their designee to photograph and/or videotape the location being searched in order to preserve the images of the scene, location of property to be seized, sampling procedures, and non-destructive testing.

Further, your affiant, based on his training and experience, is aware that it is a common business practice for records to be kept or stored at the business location in the usual course of normal business; seizure of these records and any written material relating to the criminal incident/investigation described in the attached Affidavit and Statement of Probable Cause and concerning the crime of California Health and Safety Code 115215 (C) (1) such as but not limited to, shipping papers, transportation documents, receipts, purchase orders, sales receipts, customer list, repair order,

business ownership papers and documents, utility receipts that would tend to show ownership of the property, rental receipts for hangers located at Chino Airport, manuals, inventory lists, records of transfer or sales, placards, safety procedures, injury illness prevention program, exposure reports, safety meetings.

Based on the aforementioned and his experience, your affiant is of the opinion that all the property herein and above described in the search warrant will be found at building 320, hangar 12, Chino Airport, 700 Merrill Avenue, Chino California.

In addition, based on the aforementioned and upon his experience, your affiant has probable cause to believe and does believe that grounds for the issuance of a search warrant exists, as set forth in Penal Code Section 1524.

Your affiant therefore prays that a search warrant may be issued to search and seize said property and that the same may be brought before a magistrate and disposed of according to law.

It is respectfully submitted that the items sought constitute evidence that tends to show that a felony has been committed. It is further submitted that the item are material and necessary to this investigation.

I declare under penalty of perjury the foregoing information is true and correct to the best of my knowledge.

Dated:

William Sellers
Supervising Investigator
San Bernardino County
District Attorney

Subscribed and sworn before me on this 2 day of July 2002

Judge of the Trial Court
County of San Bernardino
State of California

State of California Department of Health Services

Memorandum

DO NOT RELEASE ANY INFORMATION REGARDING THIS OPEN INVESTIGATION WITHOUT FIRST OBTAINING THE PERMISSION OF THE SAN BERNARDINO COUNTY DISTRICT ATTORNEY'S OFFICE (CONTACT: BILL SELLERS, SUPERVISING INVESTIGATOR 909-8921-3334)

Date: June 3, 2002

To: File

From: Barbara L. Hamrick, Associate Health Physicist
Quality Assurance Unit

Subject: INTERIM REPORT - 5010 #051002 – Preservation Aviation

EVENT STATUS:
On April 15, 2002, Mr. Ronnie Bromberg, of San Bernardino County Fire Haz Mat Division (909-387-4631) contacted Mr. Don Oesterle, in our Granada Hills office regarding an anonymous allegation made to Mr. O.Z. Robertson in U.S. EPA's Region IX Los Angeles area office (626-583-6737).

According to the EPA record, the alleger said that "Jeff Pearson" is entering Preservation Aviation in North Hollywood, which "the EPA sealed...over [an] issue involving radium dials," that Mr. Pearson is entering "'at least once a week' and removing items," and that "he is taking these items to one of his hangars at Chino Airport."

In fact, on February 2, 2001, Mr. Pearson was issued an order by our department, prohibiting the occupation of the Preservation Aviation facility at 10800 Burbank Blvd., North Hollywood, CA, and prohibiting the removal of any items from the facility, until such time as a workplan to cover these activities was presented to and approved by our department.

The initial stages of this investigation indicate there is radioactive material in a hangar at Chino Airport, alleged to be Jeff Pearson's hangar. Details are reported in the "ADDITIONAL DETAILS" section below.

HEALTH AND SAFETY, REPORTING:
This event is not reportable to the NRC. Based on discussions with Mr. Bromberg, and with our staff counsel, we contacted Mr. Bill Sellers, Supervising Investigator for the San Bernardino County District Attorney's office (909-891-3334) to discuss the possibility of obtaining a search warrant to determine whether or not there was radioactive material in Mr. Pearson's hangar at the Chino Airport, and the source and condition of those materials.

Based on the likely form of the radioactive materials (i.e., radium in aircraft dials), the potential risks to health and safety include the potential contamination of the hangar at the Chino Airport, the potential contamination of any transport vehicle used to move the

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radioactive material to the airport, the potential for radon build-up in the hangar, the potential for external exposure inside the hangar, and the potential for personal contamination by the person moving the material to the Chino Airport. All these risks are speculative right now, as it has not been determined that the materials are indeed radium dials, let alone whether or not they might be breached dials.

The actual radiation readings outside the hangar do not pose a substantial risk to the public at this time. See details in the next section.

ADDITIONAL DETAILS:

On May 31, 2002, I accompanied Mr. Sellers to the Chino Airport, where we contacted the airport manager's office to obtain information as to which hangar might be rented by Mr. Pearson. The manager's administrative assistant provided us with a map of the facility, and indicated where she thought Mr. Pearson's hangar might be.

We drove to the hangar location, and surveyed the exterior of the north side of the hangar. Using a Ludlum 14C, with a 2 x 2 NaI probe (S/N 149173, and PR 151477, calibrated April 1, 2002), and a Ludlum 19 (S/N 80367, calibrated April 28, 2002), we walked from east to west along the north side of the hangar complex, starting at the east end of Hangar 14, and continuing to the west end of Hangar 10, holding the detectors at a distance of about 1 – 2 inches from the exterior wall.

The attached diagram shows the results of the survey, but in summary, Hangars 14 and 10 appeared to have normal background levels of radiation of about 10,000 – 13,000 counts per minute (cpm) with the Ludlum 14 C and NaI probe, and about 5 microRoentgen per hour (μR/hr) with the Ludlum 19 meter. As we moved the NaI probe past the wall connecting Hangars 14 and 12, the meter responded promptly with an increase in the detected radiation to about 20,000 cpm from 10,000-13,000 cpm. The levels increased smoothly from that wall to about the center of Hangar 12, where the peak reading of about 55,000 cpm (and about 15 μR/h with the Ludlum 19) was obtained, and then smoothly decreased again, as we walked west toward Hangar 10. There was a noticeable decrease in radiation detected (from about 20,000 cpm back to 10,000 – 13,000 cpm) as we passed the wall between Hangar 12 and Hangar 10.

These readings clearly indicate the presence of a source of radiation (above normal background levels) in Hangar 12.

REGULATORY ISSUES:
Radium dials, of the type possessed by Mr. Pearson at his North Hollywood facility are exempt from licensure by the Department of Health Services, Radiologic Health Branch

DO NOT RELEASE ANY INFORMATION REGARDING THIS OPEN INVESTIGATION WITHOUT FIRST OBTAINING THE PERMISSION OF THE SAN BERNARDINO COUNTY DISTRICT ATTORNEY'S OFFICE (CONTACT: BILL SELLERS, SUPERVISING INVESTIGATOR 909-8921-3334)

(the Department), if the dials are "in tact," pursuant to the California Code of Regulations (CCR), title 17, section 30180(b)(24).

Due to the fact that contamination and dials that were not "in tact" were found at Mr. Pearson's North Hollywood facility, the Department issued an order to require the decontamination of the facility, upon the receipt and approval of an appropriate and adequate workplan. The order prohibited Mr. Pearson from removing any dials, including dials that are "in tact" from the North Hollywood facility, until such time as a workplan for these activities was approved by the Department. There is no approved workplan at this time.

At this time it is unknown whether or not the source of radiation in Hangar 14 at the Chino Airport is due to:

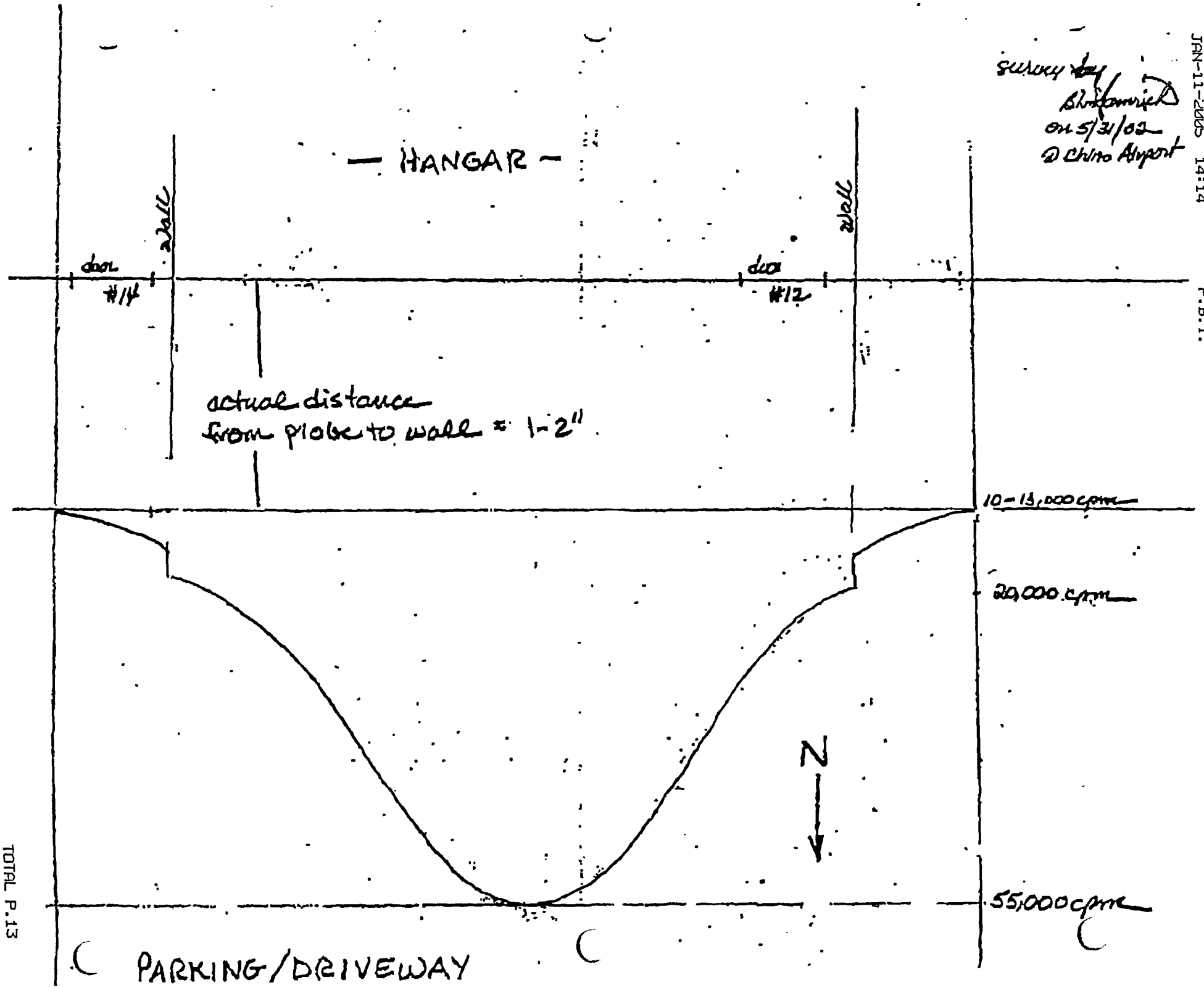
1) Radium dials that are not "in tact," (which would require a license issued by the Department); or

2) Radium dials, whether or not "in tact" that were removed from Mr. Pearson's North Hollywood facility (which would be a violation of the Department's February 2, 2002 order); or

3) Radium dials that are "in tact," and were not removed from Mr. Pearson's North Hollywood facility (which he could legally possess without a license).

Without examining the source(s) of radiation, it is not possible to determine whether or not the material is legally possessed. We are concerned that if Mr. Pearson is contacted for permission to examine the source(s) in Hangar 12, he will attempt to remove the source(s) to another location before providing us entry.

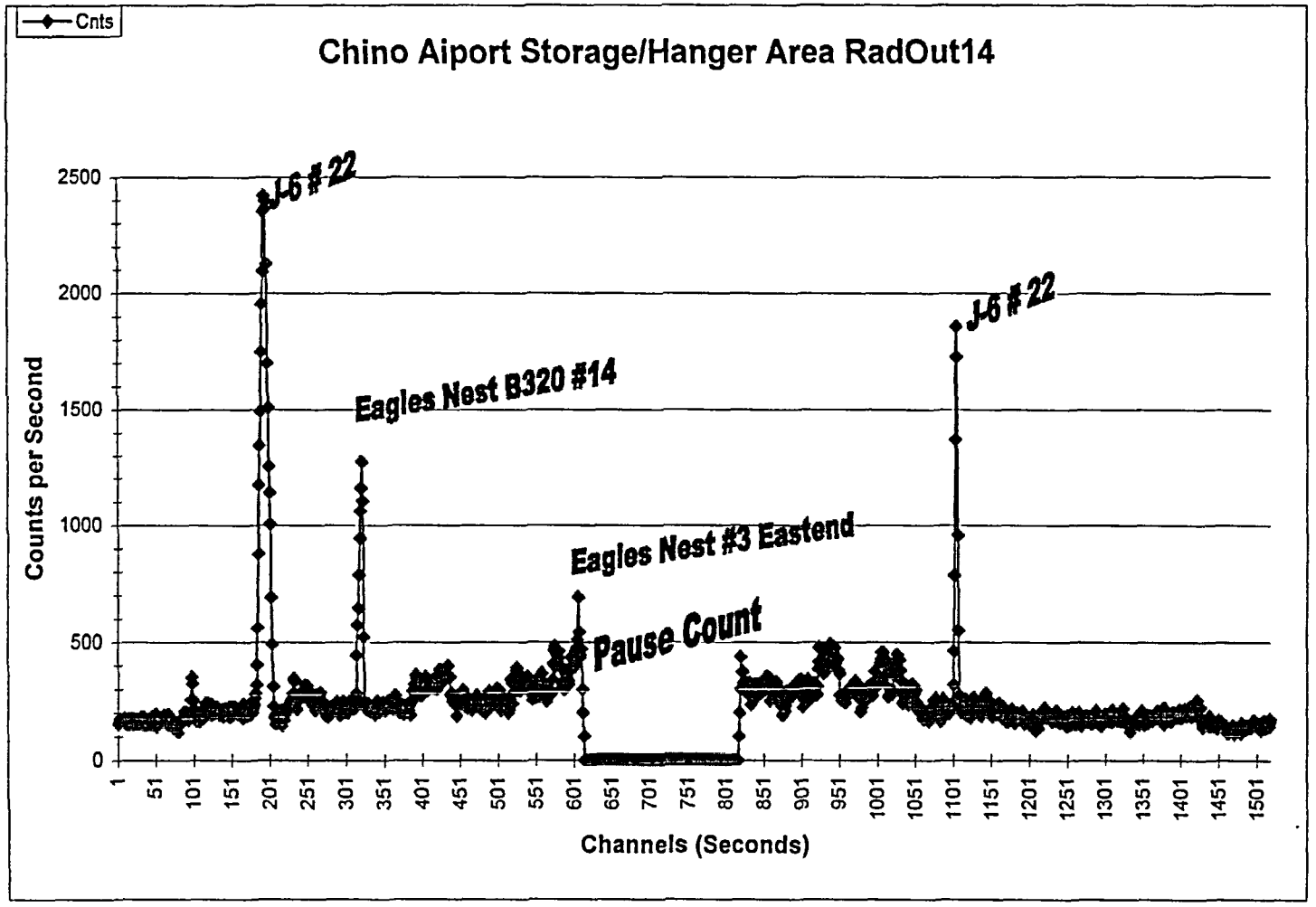
INVESTIGATION STATUS:
This investigation is open.

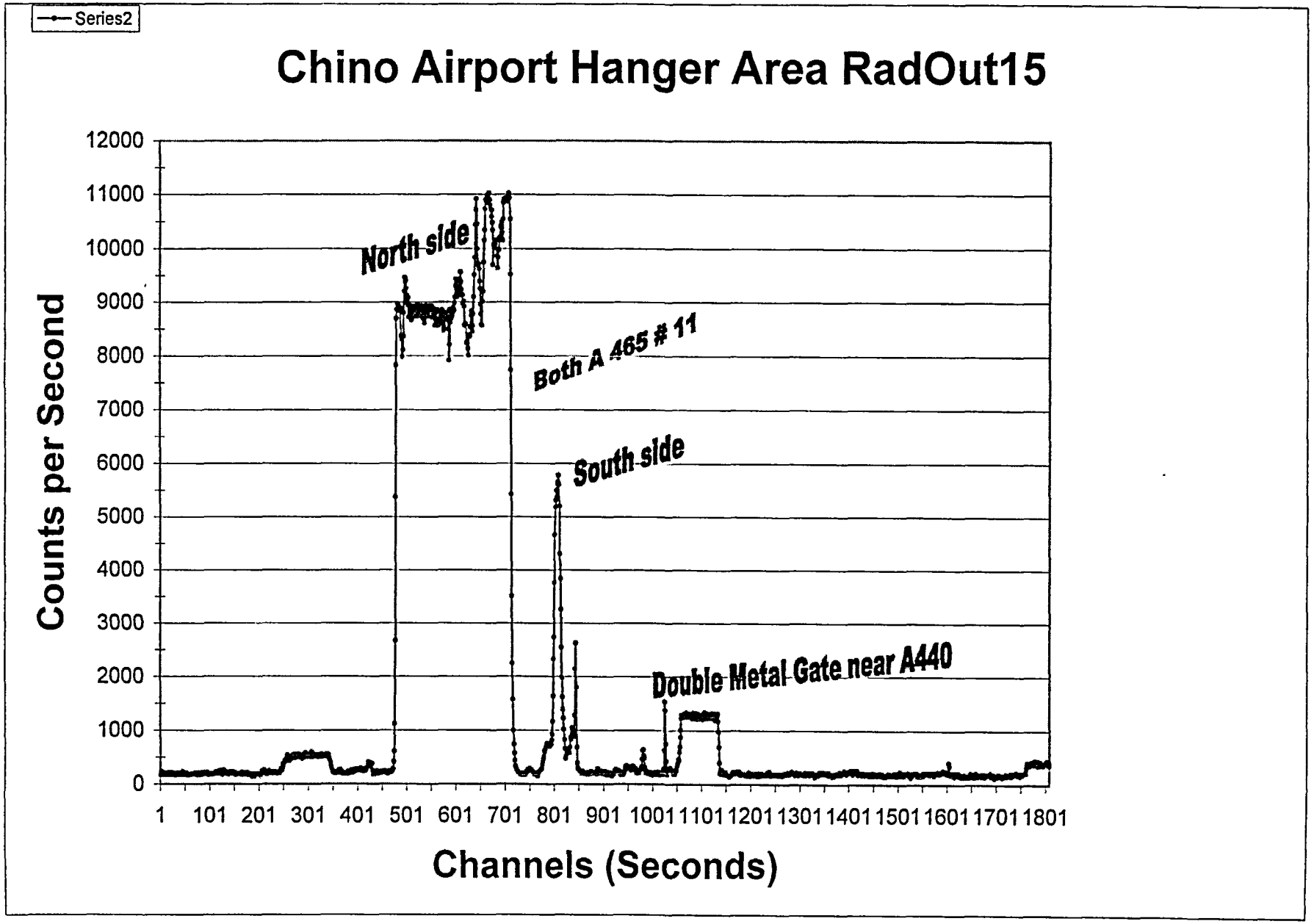

Survey by
Blankenship
on 5/31/02
@ Chino Airport
— HANGAR —
wall
door #14
door #12
wall
actual distance
from probe to wall = 1-2"
10-13,000 cpm
20,000 cpm
55,000 cpm
N
PARKING/DRIVEWAY

APPENDIX B:
SCANNER VAN DATA

On February 24, 2005, at the request of EPA Region IX a scan of the facilities of the Chino Airport in Chino, California was conducted with the Radiation and Indoor Environments National Laboratory Scanner Van. This vehicle is used to monitor gamma radiation levels in the environment. Results indicated that an anomalous source of gamma radiation in the east end of building A465 was producing an emission rate more than twenty times the measured background of the area. A source measuring approximately six times background was detected at building B240 (J-6, #22) and another more than four times background was detected at building B320 (Eagles Nest #4, doors 12 to 14).

2/24/2005 Labasin Scanner Van Scan
RadOut 14
R Shura S Faller




Series2
Chino Airport Hanger Area RadOut15
Counts per Second
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
North side
Both A 465 # 11
South side
Double Metal Gate near A440
1 101 201 301 401 501 601 701 801 901 1001 1101 1201 1301 1401 1501 1601 1701 1801
Channels (Seconds)

APPENDIX C:
FBI SEARCH WARRANT FOR BUILDING A-465, HANGAR 11

SEARCH WARRANT ON WRITTEN AFFIDAVIT

COPY

UNITED STATES DISTRICT COURT	DISTRICT CENTRAL DISTRICT OF CALIFORNIA
UNITED STATES OF AMERICA V. THE PREMISES KNOWN AS: HANGAR 11, BUILDING A-465 CHINO AIRPORT 7000 MERRILL AVENUE CHINO, CALIFORNIA	DOCKET NO. MAGISTRATE'S CASE NO. TO: ANY SPECIAL AGENT(S) WITH THE FEDERAL BUREAU OF INVESTIGATION OR ANY OTHER AUTHORIZED OFFICER

Affidavit(s) having been made before me by the below-named affiant that he/she has reason to believe that on the premises known as

SEE ATTACHMENT A

in the Central District of California

there is now being concealed certain property, namely:

SEE ATTACHMENT B

and as I am satisfied that there is probable cause to believe that the property so described is being concealed on the person or premises above-described and the grounds for application for issuance of the search warrant exist as stated in the supporting affidavit(s).

*YOU ARE HEREBY COMMANDED to search on or before ten (10) days (not to exceed 10 days) the person or place named above for the property specified, serving this warrant and making the search (in the daytime--6:00 A.M. to 10:00 P.M.) * and if the property be found there to seize it, leaving a copy of this warrant and receipt for the property taken, and prepare a written inventory of the property seized and promptly return this warrant to the duty U.S. Magistrate Judge as required by law.*

NAME OF AFFIANT	SIGNATURE U.S. MAGISTRATE JUDGE **	DATE/TIME ISSUED
SPECIAL AGENT ANNETTE FREIHON	RALPH ZAREFSKY	3/9/05 5:55 pm

* a search is to be authorized "at any time in the day or night" pursuant to Federal Rules of Criminal Procedure Rule 41(c)—how reasonable cause therefor.

** United States Judge or Judge of a State Court of Record.

SA: WWC:se

ATTACHMENT A

The premises of Chino Airport, 7000 Merrill Avenue, Building A-465, Hangar 11, Chino, California, which is further described as a one-story beige corrugated metal building. A blue sign with white lettering that reads "A-465" appears on both the east and the west side of the building. The number "11" appears on a black sign with yellow numbers next to the door.

ATTACHMENT B

1. Records and materials relating to the unlawful storage of hazardous wastes, namely, hazardous wastes, namely, mercury, corrosives (i.e., low pH), ignitables, acetone, benzene, 2-butanone, ethyl benzene, xylene, and 4-methyl-2-pentanone (also known as methyl iso butyl ketone), without a permit, in violation of the federal Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6928(d)(2)(A), and failing to report the release of a hazardous substance, namely, radionuclides, including radium and radon, to the National Response Center, in violation of the federal Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9603(a) and (b). Such evidence includes the following:

a. Samples of hazardous substances and wastes, as well as gauges, dials, instruments, thermometers, and drums containing such pollutants, substances, and wastes; pumps, hoses, or any other mechanical devices capable of pumping, siphoning, spraying or discharging chemical solutions;

b. Documents and records relating to the purchase, production, storage, shipping, disposal, discharge, transportation, treatment, processing, acceptance, sampling or testing of any hazardous substances, chemicals, or wastes, or pollutants, including Uniform Hazardous Waste Manifests, labels, receipts, work orders, estimates, contracts, work logs, invoices, purchase orders, inventory records, company reports, audits, correspondence, notes, Notices of Violation ("NOVs"), manuals, sampling logs, quality assurance and quality control procedures, laboratory analytical results, laboratory certification documents, laboratory bench sheets or logbooks, permits or permit applications, documents to and from state and federal regulatory agencies, and copies of environmental statutes, rules, or regulations;

c. Documents and records indicating chemical ingredients and additives to hazardous products, solutions, substances, or wastes located at the premises, or regarding safety or health precautions to be used in the handling of any hazardous substances or wastes on the premises, including material safety data sheets ("MSDS"), material specification sheets, letters, memoranda, instructions, brochures, pamphlets, training materials, guidelines, reports, labels, plans, business plans, maps, and diagrams;

d. Documents and records tending to establish the identity of persons in control of HERITAGE AERO, INC. or PRESERVATION AVIATION, INC. the premises, and any storage areas or containers thereon, such as desks, drawers, or file cabinets, including corporate charters, corporate minutes, personnel records, payroll records, utility company receipts, rent receipts for premises, signs, articles of personal property, lists, records, files, correspondence, memoranda, notes, mail, bills, and other items of personal property tending to establish identity;

e. Documents and records regarding responsibilities of corporate officers, partners, management and employees of HERITAGE AERO, INC. and PRESERVATION AVIATION, INC. and identifying persons at HERITAGE AERO, INC. and PRESERVATION AVIATION, INC. who have been or are responsible for the treatment, storage, disposal or discharge of hazardous substances, wastes, or pollutants, including lists, records, files, correspondence, memoranda, notes, corporate charters, corporate minutes, employee records, time cards, job descriptions, payroll records, shift records, overtime records, training and performance evaluations, and directions to perform job-related tasks.

2. All of the documentation and records described above, whether stored on paper, computer, word processing, electronic, or video or magnetic media, such as tape, disk, diskette, or disk packs, and access to any computer in order to inspect and copy any computer or telephone tapes, disk, data, or print outs of the operation of any computer or telephone for the purpose of producing a copy, tape, or print out of the records described above, and authorization to seize, if necessary, any hardware, software, manuals, modems, cables, or other items necessary for the retrieval of such documentation and records and authorization to operate any and all machinery, equipment, hardware or software necessary to locate and/or seize the above described items.

AFFIDAVIT

I, Annette A. Freihon, being first duly sworn on oath, hereby states:

1. I am a Special Agent ("SA") of the United States Federal Bureau of Investigation ("FBI"), United States Department of Justice, located in Los Angeles, California. I have been employed as an agent for over 17 years. During my employment with the FBI, I have participated in numerous investigations of organized crime, bank robbery, narcotics, money laundering, violent crimes, and environmental crimes, involving physical surveillance, informants, cooperating witnesses, undercover transactions, execution of search warrants, and arrests. I am also currently a member of the Los Angeles Federal Environmental Crimes Task Force, which is a group co-chaired by the United States Environmental Protection Agency ("US EPA") and the United States Attorney's Office for the Central District of California, and comprised of various local, state, and federal law enforcement and regulatory officers. This task force is specifically designed and dedicated to the investigation and prosecution of state and federal environmental violations in the Southern California area. Other members of this task force include the California Department of Toxic Substances Control ("DTSC"), the Los Angeles County Fire Department, Hazardous Materials Control Program ("LACFD"), and the United States Coast

Guard.

2. This affidavit is made in support of an application for search warrants commanding any agent of the FBI, with appropriate assistance from the investigative and technical staff of US EPA, US Coast Guard Pacific Strike Team, San Bernardino County Fire Department, and San Bernardino County District Attorney's Office, to search the following four (4) premises: 1) a business known as HERITAGE AERO, INC. ("HERITAGE AERO") located at Building B-320, Hangar 12, at the Chino Airport, 7000 Merrill Avenue, Chino, California; 2) a business known as HERITAGE AERO located at Building A-460, Hangar 11, at the Chino Airport, 7000 Merrill Avenue, Chino, California; 3) a business known as HERITAGE AERO located at Building A-465, Hangar 11, at the Chino Airport, 7000 Merrill Avenue, Chino, California; and 4) the residence of JEFFREY PEARSON located at 5308 Pamela Kay Lane, Anaheim, California; which are further described in Attachment A of the search warrants. This affidavit is made solely to demonstrate probable cause for the requested warrants and does not purport to set forth all of my knowledge of or investigation into this matter.

3. The premises are believed to contain evidence of violations of the federal Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6928(d)(2)(A) (unlawful storage of hazardous wastes, namely, mercury, corrosives (i.e., low pH),

ignitables, acetone, benzene, 2-butanone, ethyl benzene, xylene, and 4-methyl-2-pentanone (also known as methyl iso butyl ketone), at a facility that does not have a permit) and the federal Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9603(a) and (b) (failing to report the release of a hazardous substance, namely, radionuclides, including radium and radon, to the National Response Center). This evidence includes samples of hazardous substances and wastes, as well as gauges, dials, instruments, thermometers, and drums containing such pollutants, substances, and wastes; pumps, hoses, or any other mechanical devices capable of pumping, siphoning, spraying or discharging chemical solutions; documents and records relating to the purchase, production, storage, shipping, disposal, discharge, transportation, treatment, processing, acceptance, sampling or testing of any hazardous substances, chemicals, or wastes, or pollutants, including Uniform Hazardous Waste Manifests, labels, receipts, work orders, estimates, contracts, work logs, invoices, purchase orders, inventory records, company reports, audits, correspondence, notes, Notices of Violation ("NOVs"), manuals, sampling logs, quality assurance and quality control procedures, laboratory analytical results, laboratory certification documents, laboratory bench sheets or logbooks, permits or permit applications, documents to and from state and federal regulatory

agencies, and copies of environmental statutes, rules, or regulations; documents and records indicating chemical ingredients and additives to hazardous products, solutions, substances, or wastes located at the premises, or regarding safety or health precautions to be used in the handling of any hazardous substances or wastes on the premises, including material safety data sheets ("MSDS"), material specification sheets, letters, memoranda, instructions, brochures, pamphlets, training materials, guidelines, reports, labels, plans, business plans, maps, and diagrams; documents and records tending to establish the identity of persons in control of HERITAGE AERO or PRESERVATION AVIATION, the premises, and any storage areas or containers thereon, such as desks, drawers, or file cabinets, including corporate charters, corporate minutes, personnel records, payroll records, utility company receipts, rent receipts for premises, signs, articles of personal property, lists, records, files, correspondence, memoranda, notes, mail, bills, and other items of personal property tending to establish identity; documents and records regarding responsibilities of corporate officers, partners, management and employees of HERITAGE AERO and PRESERVATION AVIATION, INC. ("PRESERVATION AVIATION") and identifying persons at HERITAGE AERO and PRESERVATION AVIATION who have been or are responsible for the treatment, storage, disposal or discharge of hazardous

substances, wastes, or pollutants, including lists, records, files, correspondence, memoranda, notes, corporate charters, corporate minutes, employee records, time cards, job descriptions, payroll records, shift records, overtime records, training and performance evaluations, and directions to perform job-related tasks; and further described in Attachment B of the search warrant.

A. Overview of Case

4. This investigation focuses on allegations that since at least 1998, and more recently, in 2004 and February 2005, JEFFREY PEARSON, owner and operator of PRESERVATION AVIATION located at 10800 Burbank Boulevard, North Hollywoood, California (the "North Hollywood location"), and HERITAGE AERO, located at Building B-320, Hanger 12, Building A-460, Hanger 11, and Building A-465, Hanger 11, at Chino Airport, Chino, California, unlawfully stored hazardous wastes, namely, flammable liquids, corrosives (i.e., low pH), mercury, acetone, benzene, 2-butanone, ethyl benzene, xylene and 4-methyl-2-pentanone, on the premises of PRESERVATION AVIATION, INC. and HERITAGE AERO, INC. neither of which are permitted to store such wastes, in violation of RCRA, 42 U.S.C. § 6928(d)(2)(A). This investigation also focuses on allegations that PEARSON also failed to report the release of hazardous substances, namely, radionuclides such as radium and radon, in violation of CERCLA, 42 U.S.C. § 9603(a) and (b).

B. Federal Resource Conservation and Recovery Act ("RCRA") and Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA")

5. In my present assignment, I am also responsible for conducting investigations of alleged criminal violations of RCRA and CERCLA and the regulations promulgated thereunder. RCRA was enacted in 1976 as a Congressional response to the growing number of hazardous waste sites resulting from unregulated waste disposal practices. The object of RCRA includes, among other things, protection of human health and the environment through stringent regulation of the generation, treatment, storage, transportation, and disposal of hazardous waste. RCRA attempts to accomplish its objectives by creating a "cradle to grave" regulatory scheme designed to track hazardous waste from the point of generation until its final disposition.

6. RCRA requires US EPA to identify and list "solid wastes" which meet statutory definitions of "hazardous waste," 42 U.S.C. §§ 6903(5) and (27). Wastes are hazardous either by virtue of their characteristics, e.g., toxicity, ignitability, corrosivity, and reactivity (and are known as "characteristic" hazardous wastes), or by virtue of being specifically listed by US EPA. For example, a waste is considered a "toxic" hazardous waste if it, among other things, contains mercury in excess of 0.2 parts per million ("ppm"). 40 C.F.R. § 261.34. "Ignitable" hazardous wastes are those exhibiting a flashpoint below 60

degree Celcius (140 degrees Fahrenheit). 40 C.F.R. § 261.21. Under RCRA, acetone, benzene, 2-butanone, ethyl benzene, xylene, and 4-methyl-2-pentanone are considered an ignitable hazardous waste. 40 C.F.R. § 261.33. "Corrosive" hazardous wastes are those having a pH less than or equal to 2.0 or greater than or equal to 12.5. 40 C.F.R. § 261.22.

7. In addition, radionuclides, including radium and radon, are considered "hazardous substances" under CERCLA. 40 C.F.R. § 302.4. Releases of such substances in excess of one pound into the environment must be reported to the National Response Center. 40 C.F.R. § 302.6. The failure to report a knowing release of such substances is a felony violation under 42 U.S.C. § 9603(a) and (b).

8. The handling, storage, treatment, transportation, and disposal of hazardous waste are subject to regulations established by US EPA. The majority of these regulations, including those listing and identifying hazardous waste, were promulgated and became effective in 1980. Once a waste is listed or identified as hazardous, it is subject to these regulations. 40 C.F.R. 261.3. Listed or identified hazardous wastes must be transported to, treated, stored, or disposed of at facilities which have received permits properly issued pursuant to RCRA to handle such wastes. 42 U.S.C. §§ 6925 and 6926. These permitted facilities are commonly referred to as "TSDFs". RCRA permits

impose regulatory conditions specifically tailored and limited to the type of activity occurring at a particular facility. Moreover, a facility may only handle those specific wastes and perform those activities authorized by its permit. 40 C.F.R. 264.

9. Under RCRA, the knowing storage of any hazardous waste without a permit constitutes a felony violation. 42 U.S.C. § 6928(d)(2)(A). Specifically, under RCRA regulations, a generator of hazardous waste is prohibited from storing on his premises any hazardous wastes that are, among other things, not properly containerized or labeled as "hazardous waste," and is not allowed to store such wastes on his premises for more than 90 days. 40 C.F.R. 262.34.

10. Under the provisions of RCRA, businesses that generate and handle hazardous waste are required to maintain records relating to the storage, treatment, disposal, and transportation of such wastes, including Uniform Hazardous Waste Manifests ("manifest"). RCRA requires that a generator of such wastes characterize all wastes to determine whether such wastes are hazardous and therefore, subject to regulation. If the wastes are found to be hazardous, the generator must then arrange for the proper transportation, treatment, storage, and disposal of any such waste in accordance with the statutes and applicable regulations. 42 U.S.C. § 6922. Hazardous waste that is

transported must be accompanied by a manifest, prepared by the generator, which includes, among other things, (1) the names and US EPA identification numbers of the generator, transporter and permitted receiving facility of the waste; (2) the quantity and type of hazardous waste; and (3) the number of containers in the shipment. Transporters must deliver the entire quantity of waste received from a generator to the permitted facility which is named on the manifest as the receiving facility or the alternate receiving facility designated on the manifest by the generator. A copy of the manifest remains with the generator when the shipment leaves the facility after it has been signed by the transporter. The transporter must then obtain the signature of a representative of the receiving facility on the manifest, and retain a copy of this manifest. A copy of the manifest with the signature of the transporter and the receiving facility must be returned to the generator. The purpose of this manifesting system is to allow the tracking of the waste from its point of generation to the point of final disposal. 42 U.S.C. § 6922; 40 C.F.R. § 263.

D. Factual Allegations

11. This affidavit is based on information I received from Robert Greger, Chief of Inspection, Compliance and Enforcement, California Department of Health Services, Radiologic Health Branch ("DHS"), and Robert Wise, On-Scene Coordinator ("OSC"),

Superfund Technical Assistance and Response Team ("START"), US EPA, as well as my review of files and records provided by those two individuals and others. Based on that information, I have probable cause to believe that PEARSON has unlawfully stored vintage and surplus aviation instruments, including radium-bearing and non-radium bearing dials, gauges, thermometers, and other instruments containing liquids contaminated with corrosive, ignitable, and mercury-bearing hazardous wastes, at both the North Hollywood location and Chino Airport without RCRA permits, and has failed to report releases of hazardous substances at those locations to the National Response Center. The hazardous wastes and substances were and continue to be commingled at those locations.

12. On February 24, 2005, I received the contents of files regarding PRESERVATION AVIATION and JEFFREY PEARSON from Robert Greger, DHS. These records contained a detailed chronology of events regarding the investigation of PEARSON, and copies of notices and letters sent to PEARSON. I have reviewed these materials, which include, among other things, the following information:

a. On August 17, 1998, a load of scrap metal alarmed a radiation detector at a metal waste facility in Sun Valley, California. The scrap metal hauler indicated that he received the metal from JEFFREY PEARSON at PRESERVATION AVIATION, located

at 10800 Burbank Boulevard, North Hollywood, California (the "North Hollywood location"). On August 25, 1998, representatives of DHS visited the North Hollywood location and discovered thousands of aviation gauges and meters (i.e., radium coated gauges, dials, and meters containing radium-activated luminous materials). (I understand that radium is a low-level radioactive material that was typically used to illuminate the face of older (i.e., World War II era) aircraft dials and gauges).

b. In October 1998, DHS conducted radiation surveys and tests at the North Hollywood location and found that the presence of radon posed a public health and safety concern. (I understand that radon is a by-product generated through the decay of radioactive materials, including radium). Additionally, there were an estimated 350,000 gauges or dials containing Radium-226 (a radioactive material) and its radioactive "daughter" nuclides at the site, many of which were leaking radium and were deemed to be "non-intact" (i.e., broken).

c. On November 18, 1998, DHS sent a letter to PEARSON, advising him that there were a large number of radioactively-contaminated objects at the North Hollywood location that had contaminated that site and the surrounding area. (It should be noted that the North Hollywood location is located in a residential area, with apartment buildings within approximately 50 feet of that site). DHS further advised PEARSON

that he needed a license from DHS to possess the "non-intact" radium gauges and meters, and that he needed to apply within 15 days from the date of the letter. PEARSON was also encouraged to dispose of all the radium gauges and meters, both intact and non-intact, and to decontaminate the North Hollywood location.

d. On December 22, 1998, DHS discussed the November 18 letter with PEARSON. During that conversation, PEARSON admitted that many of the radium gauges and meters were broken, but that he had no intention of applying for a license to possess them.

e. On February 8, 1999, DHS issued a Cease and Desist Order to PEARSON, based on the fact that he possessed radioactive material without a specific license to receive, possess, or transfer such materials. Results of analyses performed by DHS at the North Hollywood location indicated that radon readings inside the building were approximately 25 times the recommended health and safety action level and radioactive contamination by Radium-226 at levels approximately 14 times higher than the acceptable release level. The DHS order stated that the radon levels posed a continuing public health and safety emergency. PEARSON was therefore ordered to "cease and desist from removing, transporting, or otherwise transferring any non-intact instrument containing radium, or any other object which is contaminated with radioactive material."

f. On August 17, 2000, DHS sent PEARSON another letter requesting that he apply for a license, based on his failure to lawfully remove the radioactive material from the North Hollywood location in a timely manner.

g. On February 2, 2001, DHS issued another Cease and Desist Order to PEARSON, the owners of the North Hollywood location, and the former owner of PRESERVATION AVIATION (which had previously been known as Penn Air Parts). The order stated that the building at the North Hollywood location could not be used except to decontaminate or dispose of the radioactive material, that all non-intact radium gauges and meters had to be lawfully disposed of, and that a cleanup workplan had to be provided to DHS. PEARSON thereafter provided a cleanup workplan to DHS. PEARSON, however, did not discuss the matter with DHS as required, and continued to occupy the building.

h. On April 17, 2001, the oversight of the North Hollywood location was transferred from DHS to the Los Angeles County Department of Radiation Management ("LACRM").

i. On April 18, 2001, LACRM conducted an inspection of the North Hollywood location and found PEARSON still working at the site. At that time, PEARSON admitted that he had previously received the cease and desist order from DHS.

j. Sometime before September 1, 2001, PEARSON claimed that he relinquished his keys to North Hollywood location to the

owner of that property.

k. On April 15, 2002, US EPA received an anonymous complaint that PEARSON was removing objects (i.e., radium-bearing instruments) from the North Hollywood location and transporting them to a hangar he was leasing at the Chino Airport located in Chino, California.

l. On May 31, 2002 and July 1, 2002, DHS conducted radiation surveys at the Chino Airport in the area where the Airport's property manager believed PEARSON had leased a hangar. At that time, DHS instruments detected the presence of a source of radiation above normal background levels at Building 320, Hangar 12.

m. On July 3, 2002, DHS and the San Bernardino County District Attorney's Office served a state search warrant at Building B-320, Hangar 12. During the execution of that state warrant, "tens of thousands" of radium gauges and meters were observed, some of which were found to be non-intact. When PEARSON arrived at Hangar 12 during the service of the warrant, he did not deny that he was in possession of non-intact radium gauges and meters. PEARSON also said that he was receiving radium gauges and meters at his home, located at 5308 Pamela Kay Lane, Anaheim, California. At that time, PEARSON was verbally advised that he must cease to occupy Building 320, Hangar 12, and would not be permitted to remove radioactive objects items from

that site without prior DHS approval.

n. On July 5, 2002, DHS issued a written order to PEARSON to cease to occupy and use radioactively-contaminated objects located at Building 320, Hangar 12, due to the presence of between 1,000 and 10,000 radium gauges and meters, some of which were non-intact. The order also stated that DHS detected elevated radiation contamination levels detected inside Hangar 12. PEARSON was also ordered to de-contaminate Hangar 12 and submit a workplan to DHS regarding the disposal and cleanup of all non-intact radium gauges and meters. (Although PEARSON hired an environmental consultant, who began working at Hangar 12, the clean up of that hangar was never completed. No cleanup work has been done at Hangar 12 since approximately March 2003).

o. On March 17, 2004, LACRM sent PEARSON a letter requesting a written status report regarding the remediation of the North Hollywood location. PEARSON responded with a letter dated March 29, 2004, requesting access to the objects stored at the North Hollywood location.

p. On April 19, 2004, LACRM again sent PEARSON a letter requesting that he apply for a license if he wanted to continue to work with and store radium-activated luminous objects at the North Hollywood location.

q. On June 3, 2004, US EPA advised DHS that it intended to conduct an emergency response action at the North

Hollywood location.

r. On September 24, 2004, DHS conducted additional radiation surveys at Building 465, Hanger 11, and detected the presence of elevated levels of radiation.

s. On September 30, 2004, DHS entered Building 465, Hangar 11, and found approximately 2,000 radium gauges and dials, at least seven of which were not intact. At that time, PEARSON was issued a Notice of Violation ("NOV") for possessing the radioactive materials, and was told not to enter Hangar 11 without DHS approval. DHS saw an additional 6,000 to 7,000 gauges and meters inside Building 465, Hangar 11 that were not examined.

13. On March 2, 2005, Robert Wise, OSC, US EPA START, who was in charge of the 2004 clean up of the North Hollywood location, told me, among other things, the following:

a. On March 1, 2005, Wise contacted Tim Fallon of the Chino Development League, the lessor of the Chino Airport hangars. Fallon told Wise that PEARSON is currently leasing three hangars under the business name HERITAGE AERO. The hangars are located at 1) Building 320, Hangar 12; 2) Building 465, Hangar 11; and 3) Building 460, Hangar 11.

b. On February 23, 2005, the US EPA's Radiation and Indoor Environments National Laboratory Scanner Van (the "scanner van"), which is equipped to monitor gamma radiation levels in the

environment, passed by PEARSON's residence located at 5308 Pamela Kay Lane, Anaheim, California, and did not detect a source of gamma radiation above the measured background of the area.

c. On February 24, 2005, the US EPA scanner van conducted testing in the areas surrounding PEARSON's leased hangars at the Chino Airport. At that time, elevated levels of radiation were detected at Building 320, Hangar 12 and Building 465, Hangar 11. Specifically, the scanner van detected anomalous source of gamma radiation producing an emissions rate approximately 20 and four times above normal background levels at Buildings 465 and 320, respectively. No elevated radiation levels were detected outside of Building 460, Hangar 11.

d. Thousands of radium and non-radium gauges and meters were stored at the North Hollywood location and were commingled together. Both the radium and non-radium gauges and meters contain liquid vials. However, only the non-radium-bearing gauges and meters were opened and sampled, in order to prevent any additional radioactive contamination at the site. The liquid vials inside the non-radium gauges and meters were sampled. Mercury was detected inside the non-radium gauges and meters, as well as numerous thermometers and mercury switches. Wise estimated that approximately 5% of the gauges, meters, and other instruments stored at the North Hollywood location contained hazardous materials.

14. I have reviewed a report dated January 20, 2005, written by Gerlyn Perlas of the US EPA START) relating to the laboratory analyses of samples taken from non-radium gauges, meters, and other instruments at the North Hollywood location, which states, among other things, the following:

a. Numerous gauges containing liquid vials were found during the START cleanup and removal action taken at the North Hollywood location. Some of the liquid vials found in non-radium-bearing gauges, meters, and instruments were sampled to determine whether any RCRA hazardous wastes were present on the site.

b. Laboratory analysis of nine liquid samples revealed the following:

i. Liquid samples taken on October 29, 2004, November 9, 2004, and November 11, 2004 were ignitable in that they had flashpoints of 33, 47.2, 23.5, 34.0, 28.2, 28.4, and 27.0 degrees Celsius. Two of those samples had pH levels of 1.09 and 14.1. Some of the samples also contained acetone, benzene, 2-butanone, ethyl benzene, xylene, and 4-methyl-2-pentanone.

15. On March 2, 2005, Kathleen Kaufman, Director, LACRM, told me, among other things, the following:

a. The LACRM and DHS repeatedly advised PEARSON in writing and verbally that he was unlawfully possessing non-intact radium gauges and meters at the North Hollywood location.

PEARSON, however, never advised DHS or LACRM that he was storing such objects in hangars at the Chino Airport.

b. After having received a cease and desist order from LACRM, PEARSON violated that order by continuing to work and store radium gauges, meters, and instruments at the North Hollywood location.

c. In violation of the LACRM's order, PEARSON failed to prepare and provide an acceptable workplan to clean up and decontaminate the North Hollywood location.

d. In 2002, Kaufman became aware of PEARSON's storage of radium gauges, meters, and instruments at the Chino Airport. Kaufman spoke with a consultant hired by PEARSON to perform some work at Building 320 at the airport. According to the consultant, however, PEARSON would not provide the funds needed to complete the clean up job at the airport, where materials are still stored.

e. PEARSON has been given the opportunity by both LACRM and DHS to cooperate with those agencies and clean up both the North Hollywood location and the Chino Airport.

f. Kaufman is familiar with radiation detection techniques. Based on her experience and training, she is of the opinion that the failure of a scanner van or radiation detection device to detect the presence of elevated levels of radiation does not necessarily mean that no source of radiation exists at a

particular location. Rather, in Kaufman's opinion, a radiation "hit" by a scanner van or radiation detection device means that the levels of radiation inside a particular building are extremely high.

16. On March 4, 2005, I spoke with Paul Baranich, of the California Department of Toxic Substances Control ("DTSC"), Surveillance and Enforcement Branch, who told me the following:

a. DTSC is authorized by US EPA pursuant to RCRA to enforce hazardous waste laws in California. This authorization includes the tracking of facilities and sites that are permitted under RCRA and the California Hazardous Waste Control Act to treat, store, and dispose of hazardous waste.

b. Baranich caused the permit records and files of DTSC relating to PRESERVATION AVIATION and HERITAGE AERO to be reviewed and after a diligent search, determined that neither PRESERVATION AVIATION or HERITAGE AERO are licensed as transfer, storage, or disposal facilities which are permitted by DTSC or US EPA to store hazardous waste.

17. On March 7, 2005, Robert Wise, OSC, US EPA START, told me, among other things, the following:

a. Tim Fallon of the Chino Development League told Wise that PEARSON has rented hangars at the Chino Airport since at least 1998 under the name PRESERVATION AVIATION, INC. Fallon also stated that in approximately 2001, PEARSON changed the name

of his business to HERITAGE AERO, INC. Fallon also provided Wise with copies of checks signed by PEARSON for the payment of rent on the hangars.

b. (Wise provided me with copies of PEARSON's checks dated during the period May 1998 through September 2001, that are payable to Chino Development League and bear the names PRESERVATION AVIATION, INC. and HERITAGE AERO, INC., with an address of 5308 Pamela Kay Lane, Anaheim Hills, California.

18. On March 5, 2005, I drove to the Chino Airport located at 7000 Merrill Avenue, Chino, California, and saw the following:

a. The premises of Building B-320, Hangar 12 are a two-story grey corrugated metal building. A blue sign with white lettering that reads "B-320" appears on both the east and the west side of the building. The number "12" is written in black to the left of a white door. There is a small sign on the door with a red radiation symbol.

b. The premises of Building A-460, Hangar 11 are a one-story beige corrugated metal building. A blue sign with white lettering that reads "A-460" appears on both the east and the west side of the building. The number "11" appears on a black sign with yellow numbers next to the door.

c. The premises of Building A-465, Hangar 11 are a one-story beige corrugated metal building. A blue sign with white lettering that reads "A-465" appears on both the east and

the west side of the building. The number "11" appears on a black sign with yellow numbers next to the door.

19. On March 8, 2005, I drove by the premises of 5308 Pamela Kay Lane, Anaheim Hills, California, and saw the following:

a. Those premises are a single-story family residence. On the premises is a yellow house with a red tile roof, green trim, stone facade, and a white garage door. The numbers "5308" appear in green on the front of the house. The numbers "5308" are also painted in black on the front curb. There is also a security gate at the front entrance to the house.

21. On March 9, 2005, Robert Wise told me the following:

a. Wise contacted the National Response Center and determined that during the period 1998 through the present, PEARSON had not reported any releases of hazardous substances.

b. Wise recently went onto the Internet and searched for PRESERVATION AVIATION and HERITAGE AERO. Wise found a link to HERITAGE AERO, but was unable to open or access that website. It appeared to Wise that HERITAGE AERO's website was no longer operating. Wise, however, also went onto a website known as "Hangar Talk" and noted that a person named JEFFREY PEARSON was making comments on or about March 5, 2005.

c. On March 8, 2005, Wise went to the North Hollywood location and used field instruments to detect mercury in the

gauges and meters remaining at that location. The instruments detected the presence of mercury in those gauges and meters.

22. Based on my training and experience, as well as my discussions with other investigators involved in the investigation of environmental violations, I am aware that businesses involved in the generation, handling, treatment, storage, and disposal of hazardous substances and hazardous wastes typically create and maintain records relating to such activities. In addition, as noted above, state and federal laws require that certain records and documents be maintained regarding such regulated activities. I therefore have probable cause to believe that records relating to such activities, as well as the persons involved in such activities, will be found on the premises to be searched, including: documents and records relating to the purchase, production, storage, shipping, disposal, discharge, transportation, treatment, processing, acceptance, sampling or testing of any hazardous substances, chemicals, or wastes, or pollutants, including Uniform Hazardous Waste Manifests, labels, receipts, work orders, estimates, contracts, work logs, invoices, purchase orders, inventory records, company reports, audits, correspondence, notes, Notices of Violation ("NOVs"), manuals, sampling logs, quality assurance and quality control procedures, laboratory analytical results, laboratory certification documents, laboratory bench sheets or

logbooks, permits or permit applications, documents to and from state and federal regulatory agencies, and copies of environmental statutes, rules, or regulations; documents and records indicating chemical ingredients and additives to hazardous products, solutions, substances, or wastes located at the premises, or regarding safety or health precautions to be used in the handling of any hazardous substances or wastes on the premises, including material safety data sheets ("MSDS"), material specification sheets, letters, memoranda, instructions, brochures, pamphlets, training materials, guidelines, reports, labels, plans, business plans, maps, and diagrams; documents and records tending to establish the identity of persons in control of HERITAGE AERO or PRESERVATION AVIATION, the premises, and any storage areas or containers thereon, such as desks, drawers, or file cabinets, including corporate charters, corporate minutes, personnel records, payroll records, utility company receipts, rent receipts for premises, signs, articles of personal property, lists, records, files, correspondence, memoranda, notes, mail, bills, and other items of personal property tending to establish identity; documents and records regarding responsibilities of corporate officers, partners, management and employees of HERITAGE AERO and PRESERVATION AVIATION and identifying persons at HERITAGE AERO and PRESERVATION AVIATION who have been or are responsible for the treatment, storage, disposal or discharge of

hazardous substances, wastes, or pollutants, including lists, records, files, correspondence, memoranda, notes, corporate charters, corporate minutes, employee records, time cards, job descriptions, payroll records, shift records, overtime records, training and performance evaluations, and directions to perform job-related tasks.

23. Based on my training and experience, and familiarity with investigations involving the unlawful storage and handling of hazardous wastes and substances gained in part through my discussions with experts at the DTSC, US EPA, LACRM, and DHS, I have probable cause to believe that hazardous wastes and substances are presently being unlawfully stored on the premises located at 1) Building B-320, Hangar 12; 2) Building A-465, Hangar 11; and 3) Building A-460, Hangar 11. I also have probable cause to believe that the records and documents described here-in-above will also be found on the premises located at 1) Building B-320, Hangar 12; 2) Building A-465, Hangar 11; 3) Building A-460, Hangar 11; and 4) 5308 Pamela Kay Lane, Anaheim, California.

24. Based on my experience and training, I am also aware that persons and businesses handling hazardous wastes and substances use computers to conduct their business and therefore, store records and documents electronically. I therefore have probable cause to believe that some of the records described

here-in-above will be stored and maintained electronically on the premises to be searched.

25. Based on the foregoing, I believe that there is probable cause to support the issuance of search warrants for premises located at 1) Building 320 Hangar 12 at Chino Airport, California; 2) Building 465, Hangar 11 at Chino Airport, California; 3) Building 460, Hangar 11 at Chino Airport, California, and 4) 5308 Pamela Kay Lane, Anaheim, California. that there is probable cause to believe that these premises contain evidence of violations of 42 U.S.C. § 6928(d)(2)(A) and 42 U.S.C. § 9603(a) and (b).

ANNETTE A. FREIHON
Special Agent
Federal Bureau of Investigation

Subscribed and sworn to before me
on this 9th day of March, 2005.

RALPH ZAREFSKY
UNITED STATES MAGISTRATE JUDGE

APPENDIX D:
NUREG 1.86

U.S. ATOMIC ENERGY COMMISSION

June 1974

REGULATORY GUIDE

DIRECTORATE OF REGULATORY STANDARDS

REGULATORY GUIDE 1.86

TERMINATION OF OPERATING LICENSES FOR NUCLEAR REACTORS

A. INTRODUCTION

Section 50.51, "Duration of license, renewal," of 10 CFR Part 50, "Licensing of Production and Utilization Facilities," requires that each license to operate a production and utilization facility be issued for a specified duration. Upon expiration of the specified period, the license may be either renewed or terminated by the Commission. Section 50.82, "Applications for termination of licenses," specifies the requirements that must be satisfied to terminate an operating license, including the requirement that the dismantlement of the facility and disposal of the component parts not be inimical to the common defense and security or to the health and safety of the public. This guide describes methods and procedures considered acceptable by the Regulatory staff for the termination of operating licenses for nuclear reactors. The Advisory Committee on Reactor Safeguards has been consulted concerning this guide and has concurred in the regulatory position.

B. DISCUSSION

When a licensee decides to terminate his nuclear reactor operating license, he may, as a first step in the process, request that his operating license be amended to restrict him to possess but not operate the facility. The advantage to the licensee of converting to such a possession-only license is reduced surveillance requirements in that periodic surveillance of equipment important to the safety of reactor operation is no longer required. Once this possession-only license is issued, reactor operation is not permitted. Other activities related to cessation of operations such as unloading fuel from the reactor and placing it in storage (either onsite of offsite) may be continued.

A licensee having a possession-only license must retain, with the Part 50 license, authorization for special nuclear material (10 CFR Part 70, "Special Nuclear Material"), byproduct material (10 CFR Part 30, "Rules of General Applicability to Licensing of Byproduct Material"), and source material (10 CFR Part 40, "Licensing of Source Material"), until the fuel, radioactive components, and sources are removed from the facility. Appropriate administrative controls and facility requirements are imposed by the Part 50 license and the technical specifications to assure that proper surveillance is performed and that the reactor facility is maintained in a safe condition and not operated.

A possession-only license permits various options and procedures for decommissioning, such as mothballing, entombment, or dismantling. The requirements imposed depend on the option selected.

Section 50.82 provides that the licensee may dismantle and dispose of the component parts of a nuclear reactor in accordance with existing regulations. For research reactors and critical facilities, this has usually meant the disassembly of a reactor and its shipment offsite, sometimes to another appropriately licensed organization for further use. The site from which a reactor has been removed must be decontaminated, as necessary, and inspected by the Commission to determine whether unrestricted access can be approved. In the case of nuclear power reactors, dismantling has usually been accomplished by shipping fuel offsite, making the reactor inoperable, and disposing of some of the radioactive components.

Radioactive components may be either shipped offsite for burial at an authorized burial ground or secured

on the site. Those radioactive materials remaining on the site must be isolated from the public by physical barriers or other means to prevent public access to hazardous levels of radiation. Surveillance is necessary to assure the long term integrity of the barriers. The amount of surveillance required depends upon (1) the potential hazard to the health and safety of the public from radioactive material remaining on the site and (2) the integrity of the physical barriers. Before areas may be released for unrestricted use, they must have been decontaminated or the radioactivity must have decayed to less than prescribed limits (Table I).

The hazard associated with the retired facility is evaluated by considering the amount and type of remaining contamination, the degree of confinement of the remaining radioactive materials, the physical security provided by the confinement, the susceptibility to release of radiation as a result of natural phenomena, and the duration of required surveillance.

C. REGULATORY POSITION

1. APPLICATION FOR A LICENSE TO POSSESS BUT NOT OPERATE (POSSESSION-ONLY LICENSE)

A request to amend an operating license to a possession-only license should be made to the Director of Licensing, U.S. Atomic Energy Commission, Washington, D.C. 20545. The request should include the following information:

a. A description of the current status of the facility.

b. A description of measures that will be taken to prevent criticality or reactivity changes and to minimize releases of radioactivity from the facility.

c. Any proposed changes to the technical specifications that reflect the possession-only facility status and the necessary disassembly/retirement activities to be performed.

d. A safety analysis of both the activities to be accomplished and the proposed changes to the technical specifications.

e. An inventory of activated materials and their location in the facility.

2. ALTERNATIVES FOR REACTOR RETIREMENT

Four alternatives for retirement of nuclear reactor facilities are considered acceptable by the Regulatory staff. These are:

a. **Mothballing.** Mothballing of a nuclear reactor facility consists of putting the facility in a state of protective storage. In general, the facility may be left intact except that all fuel assemblies and the radioactive fluids and waste should be removed from the site. Adequate radiation monitoring, environmental surveillance, and appropriate security procedures should be established under a possession-only license to ensure that the health and safety of the public is not endangered.

b. **In-Place Entombment.** In-place entombment consists of sealing all the remaining highly radioactive or contaminated components (e.g., the pressure vessel and reactor internals) within a structure integral with the biological shield after having all fuel assemblies, radioactive fluids and wastes, and certain selected components shipped offsite. The structure should provide integrity over the period of time in which significant quantities (greater than Table I levels) of radioactivity remain with the material in the entombment. An appropriate and continuing surveillance program should be established under a possession-only license.

c. **Removal of Radioactive Components and Dismantling.** All fuel assemblies, radioactive fluids and waste, and other materials having activities above accepted unrestricted activity levels (Table I) should be removed from the site. The facility owner may then have unrestricted use of the site with no requirement for a license. If the facility owner so desires, the remainder of the reactor facility may be dismantled and all vestiges removed and disposed of.

d. **Conversion to a New Nuclear System or a Fossil Fuel System.** This alternative, which applies only to nuclear power plants, utilizes the existing turbine system with a new steam supply system. The original nuclear steam supply system should be separated from the electric generating system and disposed of in accordance with one of the previous three retirement alternatives.

3. SURVEILLANCE AND SECURITY FOR THE RETIREMENT ALTERNATIVES WHOSE FINAL STATUS REQUIRES A POSSESSION-ONLY LICENSE

A facility which has been licensed under a possession-only license may contain a significant amount of radioactivity in the form of activated and contaminated hardware and structural materials. Surveillance and commensurate security should be provided to assure that the public health and safety are not endangered.

a. Physical security to prevent inadvertent exposure of personnel should be provided by multiple locked barriers. The presence of these barriers should make it extremely difficult for an unauthorized person to gain access to areas where radiation or contamination levels exceed those specified in Regulatory Position C.4. To prevent inadvertent exposure, radiation areas above 5 mR/hr, such as near the activated primary system of a power plant, should be appropriately marked and should not be accessible except by cutting of welded closures or the disassembly and removal of substantial structures

and/or shielding material. Means such as a remote-readout intrusion alarm system should be provided to indicate to designated personnel when a physical barrier is penetrated. Security personnel that provide access control to the facility may be used instead of the physical barriers and the intrusion alarm systems.

b. The physical barriers to unauthorized entrance into the facility, e.g., fences, buildings, welded doors, and access openings, should be inspected at least quarterly to assure that these barriers have not deteriorated and that locks and locking apparatus are intact.

c. A facility radiation survey should be performed at least quarterly to verify that no radioactive material is escaping or being transported through the containment barriers in the facility. Sampling should be done along the most probable path by which radioactive material such as that stored in the inner containment regions could be transported to the outer regions of the facility and ultimately to the environs.

d. An environmental radiation survey should be performed at least semiannually to verify that no signficant amounts of radiation have been released to the environment from the facility. Samples such as soil, vegetation, and water should be taken at locations for which statistical data has been established during reactor operations.

e. A site representative should be designated to be responsible for controlling authorized access into and movement within the facility.

f. Administrative procedures should be established for the notification and reporting of abnormal occurrences such as (1) the entrance of an unauthorized person or persons into the facility and (2) a significant change in the radiation or contamination levels in the facility or the offsite environment.

g. The following reports should be made:

(1) An annual report to the Director of Licensing, U.S. Atomic Energy Commission, Washington, D.C. 20545, describing the results of the environmental and facility radiation surveys, the status of the facility, and an evaluation of the performance of security and surveillance measures.

(2) An abnormal occurrence report to the Regulatory Operations Regional Office by telephone within 24 hours of discovery of an abnormal occurrence. The abnormal occurrence will also be reported in the annual report described in the preceding item.

h. Records or logs relative to the following items should be kept and retained until the license is terminated, after which they may be stored with other plant records:

(1) Environmental surveys;

(2) Facility radiation surveys,

(3) Inspections of the physical barriers, and

(4) Abnormal occurrences.

4. DECONTAMINATION FOR RELEASE FOR UNRESTRICTED USE

If it is desired to terminate a license and to eliminate any further surveillance requirements, the facility should be sufficiently decontaminated to prevent risk to the public health and safety. After the decontamination is satisfactorily accomplished and the site inspected by the Commission, the Commission may authorize the license to be terminated and the facility abandoned or released for unrestricted use. The licensee should perform the decontamination using the following guidelines:

a. The licensee should make a reasonable effort to eliminate residual contamination.

b. No covering should be applied to radioactive surfaces of equipment or structures by paint, plating, or other covering material until it is known that contamination levels (determined by a survey and documented) are below the limits specified in Table I. In addition, a reasonable effort should be made (and documented) to further minimize contamination prior to any such covering.

c. The radioactivity of the interior surfaces of pipes, drain lines, or ductwork should be determined by making measurements at all traps and other appropriate access points, provided contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but are of such size, construction, or location as to make the surface inaccessible for purposes of measurement should be assumed to be contaminated in excess of the permissable radiation limits.

d. Upon request, the Commission may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated in excess of the limits specified. This may include, but is not limited to, special circumstances such as the transfer of premises to another licensed organization that will continue to work with radioactive materials. Requests for such authorization should provide:

(1) Detailed, specific information describing the premises, equipment, scrap, and radioactive contaminants and the nature, extent, and degree of residual surface contamination.

(2) A detailed health and safety analysis indicating that the residual amounts of materials on surface areas, together with other considerations such as the prospective use of the premises, equipment, or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

e. Prior to release of the premises for unrestricted use, the licensee should make a comprehensive radiation survey establishing that contamination is within the limits specified in Table I. A survey report should be filed with the Director of Licensing, U.S. Atomic Energy Commission, Washington, D.C. 20545, with a copy to the Director of the Regulatory Operations Regional Office having jurisdiction. The report should be filed at least 30 days prior to the planned date of abandonment. The survey report should:

(1) Identify the premises;

(2) Show that reasonable effort has been made to reduce residual contamination to as low as practicable levels;

(3) Describe the scope of the survey and the general procedures followed; and

(4) State the finding of the survey in units specified in Table 1.

After review of the report, the Commission may inspect the facilities to confirm the survey prior to granting approval for abandonment.

5. REACTOR RETIREMENT PROCEDURES

As indicated in Regulatory Position C.2, several alternatives are acceptable for reactor facility retirement. If minor disassembly or "mothballing" is planned, this could be done by the existing operating and maintenance procedures under the license in effect. Any planned actions involving an unreviewed safety question or a change in the technical specifications should be reviewed and approved in accordance with the requirements of 10 CFR §50.59.

If major structural changes to radioactive components of the facility are planned, such as removal of the pressure vessel or major components of the primary system, a dismantlement plan including the information required by §50.82 should be submitted to the Commission. A dismantlement plan should be submitted for all the alternatives of Regulatory Position C.2 except mothballing. However, minor disassembly activities may still be performed in the absence of such a plan, provided they are permitted by existing operating and maintenance procedures. A dismantlement plan should include the following:

a. A description of the ultimate status of the facility

b. A description of the dismantling activities and the precautions to be taken.

c. A safety analysis of the dismantling activities including any effluents which may be released.

d. A safety analysis of the facility in its ultimate status.

Upon satisfactory review and approval of the dismantling plan, a dismantling order is issued by the Commission in accordance with §50.82. When dismantling is completed and the Commission has been notified by letter, the appropriate Regulatory Operations Regional Office inspects the facility and verifies completion in accordance with the dismantlement plan. If residual radiation levels do not exceed the values in Table I, the Commission may terminate the license. If these levels are exceeded, the licensee retains the possession-only license under which the dismantling activities have been conducted or, as an alternative, may make application to the State (if an Agreement State) for a byproduct materials license.

TABLE I

ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDE[a]	AVERAGE[b c]	MAXIMUM[b d]	REMOVABLE[b e]
U-nat, U-235, U-238, and associated decay products	5,000 dpm α/100 cm^2	15,000 dpm α/100 cm^2	1,000 dpm α/100 cm^2
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1000 dpm/100 cm^2	3000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5000 dpm β-γ/100 cm^2	15,000 dpm β-γ/100 cm^2	1000 dpm β-γ/100 cm^2

[a] Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

[b] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c] Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

[d] The maximum contamination level applies to an area of not more than 100 cm^2.

[e] The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

APPENDIX E:
ADMINISTRATIVE RECORD INDEX

Chino Airport Radium Dials Administrative Record Index

Section No.	Date	Description	Enforcement Confidential
1	July 3, 2002	State of California-County of San Bernardino Search Warrant and Affidavit, San Bernardino County District Attorney's Office	Yes
2	July 4, 2002	Interim Report - 5010#041502, Preservation Aviation Chino Report, California Department of Health Services Radiologic Health Branch	No
3	July 5, 2002	Order to Cease to Use or Occupy Premises of, and Cease to Use Objects At, Building 320, Hangar #12 At: Chino Airport, 7000 Merrill Avenue, Chino, CA; California Department of Health Services Radiologic Health Branch	No
4	July 5, 2002	Memorandum, Chino Airport Search, California Department of Health Services Radiologic Health Branch	No
5	July 8, 2002	Memorandum, Chino Airport (hangar #12) Search, California Department of Health Services Radiologic Health Branch	No
6	July 8, 2002	Interim Report - 5010#041502, Preservation Aviation Chino Report, California Department of Health Services Radiologic Health Branch	No
7	July 22, 2002	Preliminary Report to Preservation Aviation, Hangar 12, Chino Airport, Chino, CA; Radioactive Contamination Scoping Surveys, Pacific Radiation Corporation	No
8	July 30, 2002	Radiochemical Analysis Report, State of California-Department of Health Services Sanitation and Radiation Laboratory	No
9	July 30, 2002	Preservation Aviation - Issue Summary, California Department of Health Services Radiologic Health Branch	No

Section No.	Date	Description	Enforcement Confidential
10	August 5, 2003	E-mail From Delia Aquino (DHS-RHB) to Robert Greger (DHS-RHB) Documenting Work Stoppage at Chino Preservation Aviation	Yes
11	September 24, 2004	E-mail From Delia Aquino (DHS-RHB) to Robert Greger (DHS-RHB) Documenting Hangar Dose Rates at Chino Preservation Aviation	Yes
12	September 24, 2004	California Department of Health Services Radiologic Health Branch, Chino Airport Hangar A-465-11 Field Notes	Yes
13	September 30, 2004	California Department of Health Services Radiologic Health Branch, Chino Airport Hangar A-465-11 Field Notes	Yes
14	September 30, 2004	Notice of Violation and Radiation User's Declaration from California Department of Health Services Radiologic Health Branch to Jeffery Pearson	No
15	October 8, 2004	Radiochemical Analysis Report, State of California-Department of Health Services Sanitation and Radiation Laboratory	No
16	October 1, 2004	E-mail from Michael Lumbard (DHS) to Robert Greger (DHS), Subject Jeff Pearson	Yes
17	December 1, 2004	E-Mail from Robert Greger (DHS) to Victor Anderson (DHS), Documenting Non-Payment of Rent to Chino Development League	Yes
18	January 26, 2005	E-Mail from James Jenkins to Robert Greger (DHS), Subject: Jeff Pearson (lease info)	Yes
19	February 8, 2005	Letter from the California Department of Health Services to Charles Whisonant, Subject: Preservation Aviation	Yes

Section No.	Date	Description	Enforcement Confidential
20	February 2005	U.S. Environmental Protection Agency Radiation and Indoor Environments National Laboratory Quality Assurance Sampling Plan Scanner Van Survey	No
21	February 24, 2005	U.S. Environmental Protection Agency Radiation and Indoor Environments National Laboratory Scanner Van Survey Data	Yes
22	March 9, 2005	Federal Bureau of Investigation Search Warrants for Building A-465-11 and Building B-320-12.	No
23	March 31, 2005	Chino Airport Radium Dials Action Memorandum	No
24	TBD	Superfund Technical Assessment and Response Team Chino Airport Radium Dials Interim Report - Pending	Yes
25		CHSC §115150	
26		CHSC §115165	
27		CHSC §115185	
28		10 CFR 1301	
29	June 1974	U.S. Atomic Energy Commission, Regulatory Guide 1.86: Termination of Operating Licenses for Nuclear Reactors	